Issue 66 • 10 February 1990

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NEW COMPUTER EXPRESS

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- Green micro arrives
- Games pack on CD
- AIDS virus arrest

ST

- 'Intelligent' football
- The other ST manual
- Rings of Medusa

AMIGA

- CBM makes music
- Overlander review

SPECTRUM

- Rock'N'Roll addict
- Clip art arrives

CONSOLES

- Nintendo bargain
- 'Coin-op' console

BBC•C64•MSX
ATARI XE•PCW
ARC•CPC•QL

SPECIALIST COLUMNS

THE INS AND OUTS OF BUYING A PC

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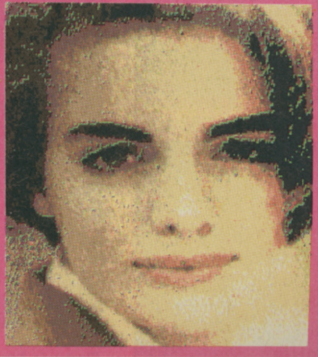
Speed-of-light computing achieved... page 3

The Gaul with the gall is back page 3



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50 PC ESSENTIALS

Read Shopping Express for 28 pages of Britain's best computer bargains

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First compact disc games released for PC clones

TOOLWORKS PC CD SETS THE TREND

Software Toolworks is to launch a compact disc compilation of its top games – the first CD games to run on a PC.

Toolworks hopes the launch of the *CD Game Pack* will coincide with that of the Headstart CD-ROM PC this spring (*Express* 61). The computer industry is already buzzing with excitement at the possibilities of this machine which, it is understood, will be sold through High Street stores.

Headstart can rely on the muscle of parent company Philips to get its sub-£1,000 machine to market.

The Toolworks pack will sell for $99 in the US and a pound-for-dollar price looks probable. It incorporates five games – *Life and Death, Chessmaster 2000, Beyond the Black Hole, Gin and Cribbage King* and *Bruce Lee Lives.*

Toolworks will also be launching its own PC CD-ROM interface and drive for about £300. That also will arrive here in the spring.

ST and Amiga owners won't be left out either. The Californian firm is currently working on CD games for the ST and Amiga due out later this year. No doubt the Amiga version will be designed to run on Commodore's CD-Amiga (*Express* 63).

Many companies are looking closely at compact disc's entry into the home computer market. Code Masters and Rainbow Arts have both announced CD games compilations for the 8-bit machines, although sales thus far have not been impressive. ■

The Software Toolworks
CD GAME PACK
LIFE & DEATH
BLACK HOLE
Part of the HeadStart Software Series

• Toolworks games pack: CD for the PC

No to South African games trade

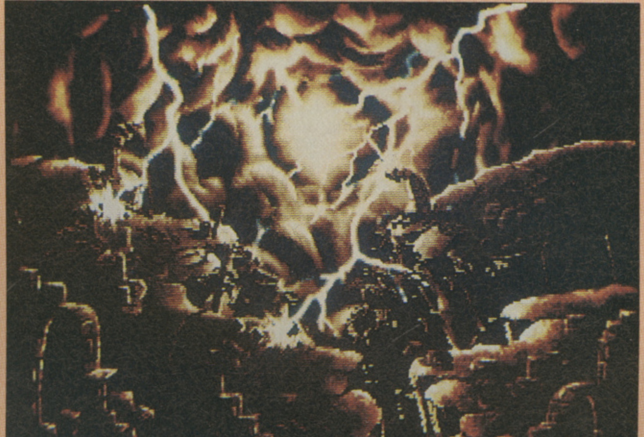
Talented graphics artist Pete Lyons has taken a stand against injustices in the Republic of South Africa.

He's drawn up a contract stipulating that none of his work can be sold to the troubled republic. Lyons, whose work includes *DDT* and *Gravity*, doesn't want anyone profiting from sales to a country which condones racism.

Lyons' contract states that promotional material must state that the games cannot be sold to South Africa. Readers of various computer games magazines will see the warning on ads for Mirrorsoft's *Gravity*.

Most software houses in the UK already refuse to deal with South African distributors, although games inevitably find their way into the country through immoral exporters. ■

EA GETS IMPERIOUS



Electronic Arts is gearing up for its major launch of the year – *Imperium*. The complex space strategy game is due for release on the ST and Amiga in April. It gives the player the chance to oversee the Earth's development over the next 1,000 years. You'll have to keep a tight control over the economic, diplomatic and military activities of rivals and subordinates in a complicated galaxy. The firm will be hoping to repeat its extraordinary success with last year's hit, *Populous.* ■

• Logitech: lots on offer.

Mouse rival at the tip of your thumb

This week sees Logitech's alternative controller to the mouse – the TrackMan – reach the shops.

The peripheral's manufacturer says the device offers all the advantages of both the mouse and the unfashionable but sometimes useful tracker ball.

Trackman is an oddly-shaped device which is controlled using the thumb. The manufacturer reckons it will appeal to owners of portables and those with overcrowded desks who want to control their PCs with their thumb-tip. It has a hardware default resolution of 300DPI and software-adjustable resolution of between 500DPI and 1,500DPI.

It costs £95. Call 0925 413501.■

Another Asterix game, by Toutatis!

Remember that little French fellow Asterix the Gaul, star of many children's books, films and even a old computer game? Well he's back – in a completely new computer adventure.

The original Asterix game from Melbourne House wasn't too hot, but now The Edge is to release a game which boasts cartoon-style graphics similar to those it has sucessfully employed in *Garfield* and *Snoopy*.

There are two parts to the game – one for children so they can mess around with the graphics and one for the serious games player with callenging obstacles. It should arrive in the summer.

Curiously, French publisher Coktel Vision has recently also brought out a game called *Asterix and the Enchanted Stone*.

The reason there are so many different Asterix games is that Coktel Vision obtained the licence for its game from the movie makers, while The Edge obtained its licence from the book publisher, Hodder Dargaud. ■

MIT worried by VDU cancer

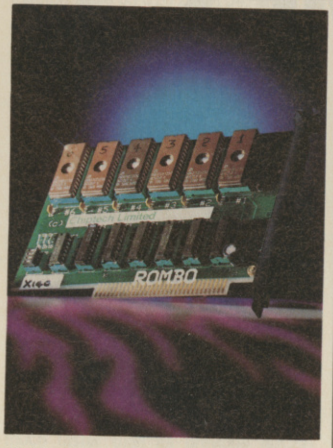
The risks of electromagnetic radiation from computers should be examined in detail, according to the influential Massachusetts Institute of Technology.

This new danger to computer users – detailed at length in last week's *Express* – is part of a report published by the American Institute of Standards and Technology at MIT.

It states that many household products, such as computers and electric blankets, radiate harmful fields.

Similarities have once again been drawn with overhead power lines which various researchers suggest are responsible for cancer, leukaemia and other disorders. MIT researchers says the whole subject should be taken more seriously and scrutinised in detail. ■

TIME SAVER



Waiting for that familiar program to load from your floppy can be so annoying, even if it takes only a few seconds.

And if it's really driving you nuts then it might be time to get your hands on an internal ROM-based PC board.

All you have to do is install the board, transfer the program onto EPROM, and plug the chips into the board. Every time you load up it will take just a quarter of a second or so. The board comes with appropriate driver software to transform it into a very fast silicon disk.

The device comes from St Albans-based Chiptech but, strangely, the firm is reluctant to reveal how much it costs.

Anyone hoping to wrangle a price out of the companycan call 0727 40476. ■

Bell Labs finally achieves 'impossible' dream:

THE WORLD'S FIRST LASER PROCESSOR

The world of computing has seen the first glimmer of what will prove to be the new age of information technology. Scientists at AT&T in the US have developed an processor which works using light.

> **"We began working towards an optical computer when most people felt it was an impossible task. This is a major step toward such a computer." Alan Huang, head of Bell's optical computing research department.**

The experimental machine uses laser beams instead of electricity as the medium for transmitting information around a computer. As a technological milestone, the announcement has already been put on the same scale in computing terms as the Wright brothers' first flight was to aviation.

Optical computers of the near future will be able to run at 1,000 times the rate of today's fastest machines. The breakthrough also has exciting ramifications for those involved in speech synthesis and optical recognition – developments in these fields have been hampered by the speed of current computer technology.

Scientists at AT&T–owned Bell Laboratories have been working on this project for the last five years. They have sought help from colleagues from academia and industry around the world, including Britain.

ALTERNATIVE

The search for an alternative to conventional silicon computing was prompted by the realisation that the limits of the material's physical properties have almost been reached.

Optical computing's principle advantage is its speed and ability to multi-function. It will be able to perform millions of instructions simultaneously.

Bell's experimental computer is a two-foot square of curious lenses and lasers, owing little in appearance to computer models of today.

It actually runs at about the speed of a 286 PC – snail-like by state-of-the-art standards. But Bell says this is only a primitive model of what will be the world's fastest supercomputer within the next 10 years. The technical specification of the beast will leave the silicon machines of the new century behind.

Alan Huang, Bell's head of optical computing research, commented: "We began working on an optical computer when most people felt it was an impossible task. This is a major step towards such a computer."

He added: "It's the difference between going to a library and being able to read information from one book versus being able to read from all the books in the building at once."

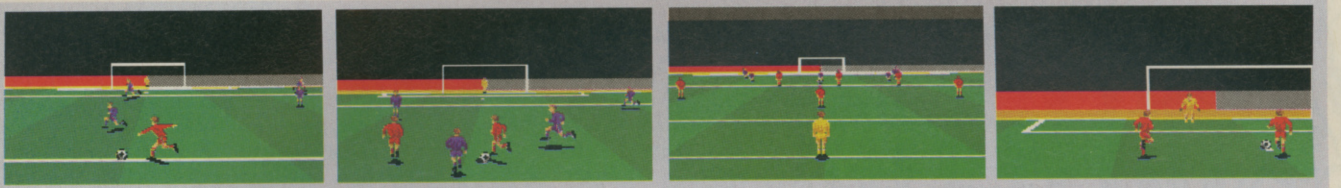
Huang employed the help of Scottish scientist Professor Desmond Smith of Heriott-Watt University in Edinburgh. He predicted two years ago that such a computer could be developed, but lacked the funding to go ahead with his project.

"We owe him a great debt of gratitude but it is basically a question of resources," says Huang. "Here we are lucky enough to have access to certain equipment that together would cost more than $60 million."

PRISMS

The computers of today work using electrons which flow around a silicon-based-processor. Optical computing utilises an array of lasers, mirrors , prisms and lenses which shoot beams of light around at 186,000 miles per second. Nothing else moves as fast as a photon – a light particle – so optical systems offer the ultimate speed.

More specifically, the Bell system is based on a cluster of gallium arsenide optical switching elements, each of which is capable of processing one billion pieces of information every second. ■



Intelligent football game is ‘the ultimate’ simulation

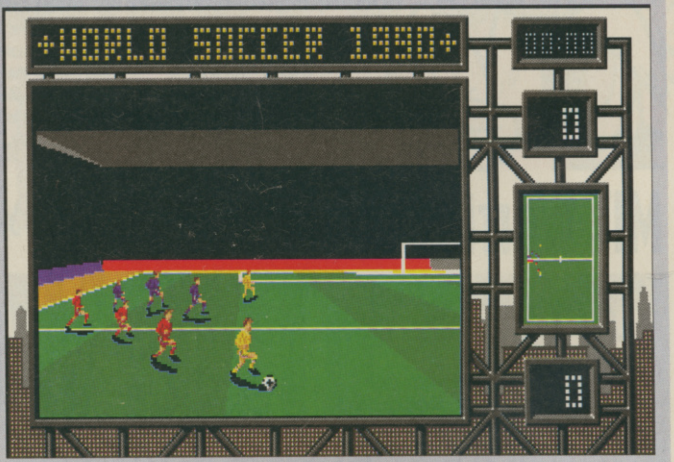
MicroProse is currently working hard on what it claims will be the ultimate football-playing simulation.

Game designers are putting together a formula for a game which uses artificial intelligence. It views the game from the back of the pitch and gives the player control over just one footballer.

But instead of simply chasing after the ball, the player has to interact with computer team-mates and move into advantageous positions on the field.

MicroProse is considering giving control over more than one player, perhaps a winger as well as striker, but says the ramifications have all to be studied.

MicroProse *Soccer II* is no more than a demo at present but it looks impressive. The real thing will arrive at about the same time as the World Cup finals. ■



• *MicroProse Soccer II: promises intelligent interaction on the pitch.*

Problems at Apple's core

The man appointed by Apple to turn the Californian firm into a disciplined outfit has resigned.

Allan Z Loren last week quit his post as US sales and marketing president after three years. The move has prompted a high-level re-organisation which includes the promotion of European boss Michael Spindler to worldwide vice-president.

According to Apple, Loren's resignation was “a personal decision”, but it would appear that his attempts to tighten up Apple's operations through a more disciplined approach were met with some resistance.

This is not the first time the company has felt growing pains. Apple has had a difficult metamorphosis into a corporate entity.

Loren is reported to have clashed with a number of old Apple managers because of his disciplinarian approach to business, and is said to have not been the most popular executive in the company's history.

The management re-organisation follows poor financial performance largely blamed on Apple's slowness in introducing new low-cost machines. ■

New light gun pack for games console buyers

NINTENDO OFFERS GUN AND GAMES

Nintendo is to offer console buyers a bundle of games and gadgets in a new attempt to win the British console market.

The Action Set will include Nintendo's 8-bit console with the usual two hand-held controllers, a ‘zapper’ gun and a double games cartridge containing popular games *Super Mario Brothers* and *Duck Hunt*. The latter gives gamers a chance to try out the light gun.

UK distributor Serif is only the latest in a line of companies which have attempted to emulate the Nintendo's US success here in Britain. A series of half-hearted marketing campaigns and unfinished projects have left the machine a long way behind its main rival, Sega.

Serif, which also sells board games such as Trivial Pursuit in Britain, says the time is right for the Nintendo. More than 30 million Americans have already bought the system, but in the UK its popularity is not so high. The Nintendo machine is five years old.

The Action Set will be available in the spring. Although no price has yet been fixed, it is likely to cost between £80 and £100.

Serif is also to start selling the Gameboy hand-held with five games – *Tetris*, *Super Mario Land*, *Golf*, *Tennis* and a version of *Breakout*. Serif is on 0473 225941. ■

• *Nintendo: gunning for victory*

Juice up the portable

Zenith has announced what is described as a leap forward in battery technology for people who own a SupersPort laptop computer, *writes Ben Feinbaum.*

For the price of £225, unless you buy a Zenith SupersPort 386SX when the pack comes free, the Rapid Charge Ni-Cad Battery Pack claims to be maintenance free – unlike conventional rechargeable batteries.

Conventional systems require a complete discharge every few cycles to maintain battery life, claims Zenith.

Zenith says that the pack now offers a hassle-free battery recharge that will have “the same punch in two years time as the day you bought it”. And, connected to the mains, the pack will completely renew in just three hours.

The unit is as “light as possible”, and the pack offers an absolute minimum battery life of three hours. For more details, phone 0628 668588. ■

Hot chips

An extraordinary new microchip has been developed by Japanese giant Fujitsu which is capable of an unparalleled one trillion operations per second.

However, such is the intense activity on the chip that it heats up to such an extent that it is rendered instantly unusable. Fujitsu recommends future users to work in an environment where the temperature does exceed minus 200 Celsius. ■

Amiga music bundle in US

MIDI music software specialist Dr T has announced a joint bundle of products from itself and Commodore in the US, *writes Jason Holborn*.

The bundle consists of a specially-priced A2000 HD computer with Dr T's *KCS* 3.0 sequencer, *Copyist Apprentice* scoring package and a coupon for a synthesiser editor or patch librarian of the customer's choice.

According to Al Hospers, boss of Dr T, this is the first time that such a bundle has been aimed squarely at the serious musician, and is a sign of increased interest in the Amiga among musicians. "Serious musicians and professionals are catching on to the fact that the Amiga does things that no other computer does," Hospers adds.

The company hopes that Commodore in the UK will agree to a similar pack. The firm is known to be cooking up something which will be announced within the next few weeks.

New from Dr T is the latest version of its highly-successful MIDI sequencer. *KCS* 3.0 boasts a revised user interface with new AutoMix capabilities. AutoMix offers two 16-channel banks of on-screen graphic sliders, real-time display and generation of any MIDI controller, and VU meters to show MIDI activity.

With the inclusion of Dr T's new *Phantom* SMPTE time code generator, *KCS* 3.0 can be used to bring together music and video, using industry-standard time codes. For professional users, *KCS* 3.0 even allows remote control of the Fostex R8 MIDI tape recorder.

For more info, contact Dr T's UK distributor, MCM on 01-724 4104. ■

Book-sized PCs multiply

Anyone looking for a new answer to the problem of portability could soon find one. A range of book-sized machines is about to come on the market from Toshiba, NEC and Epson, according to Japanese newspaper sources.

Toshiba will unveil an 80286-based, book-sized AT-compatible model that is much faster than its previous 80C86-based DynaBook, although its enhanced communication features will raise the price to £1,300.

Seiko-Epson's new offering is likely to cost around £800 and comes with a built-in 3.5-inch floppy disk drive. It's also expected to be compatible with NEC PC-9801 personal computers, which are popular in Japan.

NEC itself is also rumoured to be releasing a book-sized version of its PC-98LT laptop, with an embedded V50 microprocessor. At £625 it will be £1,350 cheaper than the PC-98LT, but will only run 500 programs to the 98-LT's range of 4,700.

It seems you still judge a book-sized by its program-cover. ■

Extradition proceedings under way in extortion case

PC AIDS VIRUS: MAN ARRESTED IN STATES

A man has appeared in an Ohio court accused of organising the so-called computer AIDS virus which hit PCs around the world at the end of last year (*Express* 60).

Joseph Popp has been refused bail and will be remanded in custody pending reports into his psychiatric state of health. Popp, a 39-year-old doctor of zoology, was arrested by officers of the Federal Bureau of Investigation last Thursday night (February 1). The FBI had been working in conjunction with Scotland Yard and the US Computer Emergency Response team. The British authorities have requested that he be extradited.

Popp is accused of involvement in a large-scale computer fraud operation. At the end of last year 35,000 disks were sent out to PC users around the world – the large majority came into the UK and were directed at subscribers to a leading PC news magazine.

The software purported to evaluate a user's risk of contracting AIDS by asking a number of questions concerning sexual activity and preferences. However, the program would only run if installed on a hard disk.

Once installed the 'Trojan horse' program set about corrupting the hard disk's root directory. This set off an incremental counter which kept track of the hard disk's activity.

After 90 resets all files became encrypted, rendering the disk unusable. Users were invited to send $378 to the PC Cyborg Corporation which would then send back a decryption program. The address given was a box number in Panama.

A spokeswoman for Scotland Yard told *Express*: "This is the biggest operation yet that our computer crime squad has had to deal with." She said the police are confident extradition will be granted within 60 days.

During his court appearance Popp said that he had recently been seeking psychiatric help in Cleveland and had been under the influence of mind-altering drugs. He said this could damage his chances of defending himself adequately.

The US attorney's office in Cleveland said that Popp had been studying the AIDS disease in Africa where he had worked for the World Health Organisation. He has no obvious background in computers.

If he is brought to Britain, Popp will be tried under the Theft Act for allegedly demanding money with menaces. ■

PSION'S SOCK SHOCK

Psion has hit the High Streets again as major footware retailer The Sock Shop has opted for Psion POS2000 computer systems at the point of sale for British and French outlets.

The small Psion hand-held computer is used as a bar code reader to scan purchases and returns, while details of stock are now stored on Datapaks and ferried to company headquarters on a weekly basis to update centralized sales information. Other high-street retailers already making use of Psion systems include Marks & Spencer, Debenhams, Alexon, CIRO Pearls and Windsmoor. ■

Green PC to clean up

An environmentally-friendly PC has been developed by London-based firm Systems Exchange.

The low-cost PC is built without using the harmful chlorofluorocarbons (CFCs) which destroy the ozone layer, and is cased in a re-usable box. The green machine's internal circuit boards are also printed without using CFCs. Whereas most manufacturers use CFCs to clean the boards, Systems Exchange says it will make do with water.

The most extraordinary feature of the machine is its casing – made from recyclable polyconcrete. That is a combination of vegetable oil, polyurethane and pulverised ash (the waste from coal-fired power stations).

The green PC should be available by Easter with prices starting at £820 for the entry level 8088 XT, rising to £2,000 for a 386 model. Call 01-224 6333. ■

Bull shift

More evidence that the big boys in the computer business are struggling come last week as Groupe Bull, France's largest computer manufacturer, announced plans to shed 1,200 jobs. The job losses are part of a complex series of cost-cutting measures aimed at coping with the lower demand for high-end computers throughout the European market. ■

Windows gets the Word

Microsoft, renowned for its industry-standard BASIC language and DOS operating system, has created what the company believes to be the ultimate in word processing, *writes Jerry Glenwright.*

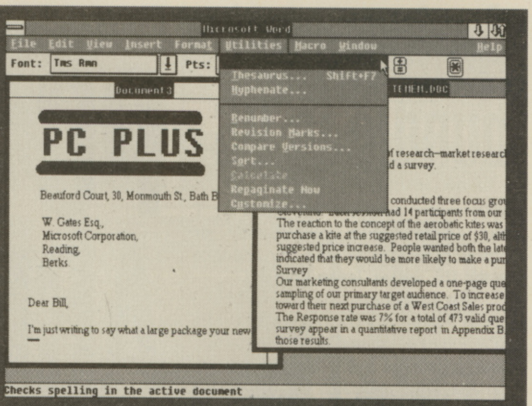
***Word for Windows* is a version of the popular word processor designed to run on powerful 80286 and 80386-based PCs, taking advantage of the Windows graphical user environment.**

Previously, PC word processors were restricted to unfriendly command line interfaces making them extremely difficult for novice computer users to get grips with. But *Word For Windows* is set to change all that by leading the transition from character-based to graphics-based word processing.

All commands within the program are accessible via a series of pull-down menus, and options such as margins, fonts and italics are presented graphically on-screen and are easily controlled and revised.

Microsoft has spent a long of time testing the new word processor to ensure its integrity before being released. "This product has probably undergone more testing than any other in Microsoft's history", said David Svendsen, Microsoft's managing director. "In the UK alone over 50 corporations have been involved in the beta test programme."

***Word For Windows* will be released soon with a price yet to be announced. Contact Microsoft on 0734 500741. ■**



Beauford Court, 30, Monmouth St., Bath B

W. Gates Esq.,
Microsoft Corporation,
Reading,
Berks.

Dear Bill,

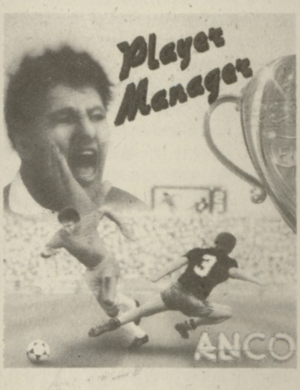
I'm just writing to say what a large package your new

f research–market researc
d a survey.

conducted three focus gro
ad 14 participants from our
The reaction to the concept of the aerobatic kites was
purchase a kite at the suggested retail price of $30, alt
suggested price increase. People wanted both the lat
indicated that they would be more likely to make a pur
Survey
Our marketing consultants developed a one-page que
sampling of our primary target audience. To increase
toward their next purchase of a West Coast Sales prod
The Response rate was 7% for a total of 473 valid que
survey appear in a quantitative report in Appendix B
those results.

Checks spelling in the active document

• Word, *Microsoft's well-regarded word processor, now available for the Windows system.*



• Player Manager*: Anco hopes it will follow the sucess of* Kick Off.

Player Manager kicks off

Player Manager, Anco's follow-up to football simulation *Kick Off*, has finally arrived for the ST and Amiga.

Kick Off's well-documented success has left thousands of addicts waiting for a game which combines the action of the original with some engrossing strategic play.

Player Manager is certainly comprehensive and promises to be a huge hit. It costs £19.95. Other versions will follow shortly. ■

Help for Howe

The hard-pressed data protection registrar, Eric Howe, is to recruit more staff in his drive to make sure computer data is used properly.

Seven new members of staff are to start work this week, as well as an extra legal adviser.

Said Howe, "I want to begin working on issues of growing importance, for example the use of data in connection with police and health systems, and the use of the government data network."

The Data Protection Registry's role is to protect people from the adverse affects of information technology, and it was set up to monitor information computers can hold about people – and what information people can extract from computers. ■

Coin-op graphics from a home games machine

HIGH-SPEC CONSOLE HAS DUAL CHIPS

Arcade game manufacturer SNK is to launch a high specification games console based on 16-bit technology.

The new machine – called Neo Geo (New World) – will come with two chips – both the Motorola MC68000 and Zilog Z80A processors.

The games cartridges will also be capable of transfering graphics data at 330 megabits per second, offering real arcade-style graphics speed on a home system.

For the first time on a games console, players will be able to record high scores with the aid of an accompanying IC card.

Not surprisingly this new system is expensive. The machine itself will cost 58,000 yen (£290) in Japan with games cartridges weighing in at an unprecedented 28,000 yen (£130). Enterprising importers which manage to convert the system to UK television standards will probably be charging about £350 for the hardware and £150 for cartridges.

The console is to be launched in Japan with six game cartridges.

SNK expects sales in the East to reach 300,000 in the first year of the console's release. ■

Game on...

London played Manchester in a live darts match recently – and neither team left home.

By using two dart boards designed by Heber Electronics and linked by Dowty's Quattro 529 modems, each player could watch the progress of the game and see his opponent's score being recorded as it happened.

The boards are manufactured by Wellow Leisure Products and the electronics within the bristles mean players can choose from a number of games including playing against the board's various skill levels.

Quite what prevents players cheating when thay cannot see their opponent is not clear, and publicans are not thought to be overly worried by the device.

Of course if you really want a challenge, the modem link means a game with Eric is only a phone call away.... ■

• *Chalking up a new success: Tony Reynolds (left) of Heber and Andy Vining of Wellow.*

Epson recalls 100,000 danger PCs

Epson in Japan has been forced to initiate the biggest ever computer recall operation.

The firm has found defective parts in the power charger units of its PC-286L, LE and LF PC compatibles. Epson fears that the fault could mean dangerous overheating. Apart from emitting a horrible smell, it means there is a serious risk of the computer going up in smoke – especially if connected to an AC adapter when the internal battery runs down.

The defective parts of 105,500 PCs will have to be exchanged in machines which were sold in the period December 1987 to December 1989.

The cost of this operation is a staggering one billion yen (£4 million).

Epson has spent much of the past two years engaged in an aggressive fight to catch up with Japanese market leader NEC, and has enjoyed considerable success – although some analysts suggest that Epson's growth has been too rushed.

The biggest computer recall in the UK only affected a few thousand owners and was undertaken by Amstrad last year when it was found that hard disk versions of some of the company's high-end PCs were faulty. ■
(Newsbytes).

Spreading the net

Acorn's next computer networking conference will offer a wider range of solutions for teachers and administrators as well as applications outside education, it was announced this week.

The conference, to be held from July 9 to 11 at Keel University, Staffordshire, will consider Ethernet systems and wide area networking, as well as differing network protocols and operating systems.

Contributions from delegates are being invited on virtually all aspects of education, plus health and healthcare; automation; measurement and control; and business uses of networking. ■

New Who's Who guide

Market i is publishing an upgraded version of *Who's Who in the UK Information Technology Industry*, which will contain details of British companies, their addresses, products, services and the names of key staff – with information updated every three months.

Call 01-446 8431. ■

Back-bench MPs in extraordinary argument

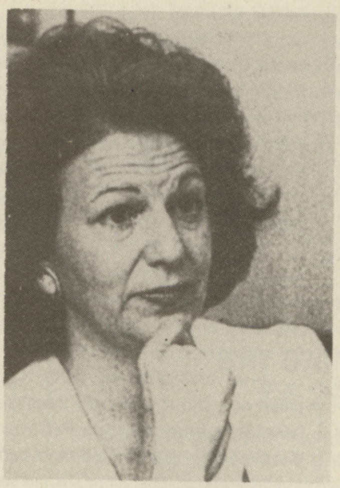
TORIES CLASH OVER ANTI-HACKING BILL

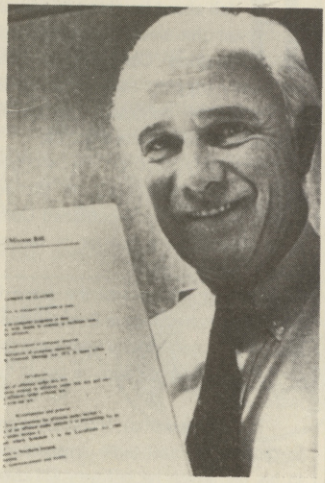
Attempts to outlaw hacking are being endangered by an argument between Tory MPs Emma Nicholson and Michael Colvin.

Colvin, who is hoping to pass a private member's bill later this year, has hit out at Nicholson for attempting to add three amendments to his Computer Misuse Bill. Nicholson spent most of last year attempting to push through her own bill outlawing hackers. Her efforts came to nothing.

In an interview last week, Colvin told *Computer Weekly*: "I know she wants to put forward some amendments and I've said 'by all means put a marker down for them, but don't for Christ's sake try to latch them onto my bill before the committee stage'."

Colvin fears that his bill, already a complex one, will be spoiled by Nicholson's extra clauses. "Any attempt to widen the bill's scope will lead us into a minefield from which it can only emerge in tatters," he said.


• Nicholson: accused of riding on Colvin's bill.


• Colvin: fears of over-complicated legislation

Colvin's bill proposes that computer hacking be made illegal with fines of up to £2,000 and a maximum prison sentence of five years. Nicholson wants the bill to cover electronics eavesdropping and the acceptance of computer evidence in court. There is also a 'mystery amendment' which will be revealed by her at a later date.

Colvin said: "Nicholson should use the committee stage to air her views, not make my bill her vehicle."

Nicholson, however, says she will not withdraw her amendments, claiming that the new clauses will not harm the bill's chances in the Commons.

"Colvin's fears are unfounded," she claimed. "As one of the bill's sponsors I will do everything possible to see it through." ■

Hackers force EC to move

A lack of computer security at its Brussels headquarters is forcing the European Commission to consider a move to a safer site.

The EC is worried about a lack of suitable data protection and anti-hacker laws in Belgium and wants to move its computer system to neighbouring Luxembourg, which has much stricter laws. The Commission has suffered half a dozen attacks from hackers over the past six months.

The EC already has a systems house in Luxembourg, a site which is likely to grow in importance over the next few years. ■

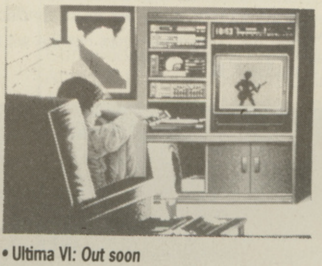
Ten-year-old saga continues

More details of Origin's latest game in the ten-year-old Ultima saga have emerged this week.

Announced at the CES show in Las Vegas earlier this month *Ultima VI: The False Prophet* is the first of the award-winning series to be designed entirely on the IBM.

The game features superbly-crafted animation and special effects which take full advantage of 256-colour VGA/MCGA graphics, as well as EGA.

All gameplay is menu and icon controlled, and is accompanied by a full-length musical soundtrack that supports all major sound boards including Roland, Creative Music Labs and Ad-Lib.


• Ultima VI*: Out soon*

A special limited edition of the game will be available soon for £29.99, along with *The Official Book of Ultima* from Origin and Compute Books. ■

Fujitsu dries out

Fujitsu Europe announced on the last day of January that its main European manufacturing plant is back to volume production after severe flooding brought it to a standstill in mid-November.

During the afternoon of November 14, 1989 in Malaga, Spain, where the Fujitsu plant is sited on a local industrial estate, the average yearly rainfall for the area, 50cm, bucketed down in the space of just two hours.

Within an hour of the downpour the river bank upon which the estate stands was overwhelmed by the rising torrent – and so were two weeks' worth of components. By evening the plant was submerged, and some workers were trapped on the premises until 3am, before being rescued by the army.

In addition to the loss of stock, Fujitsu had to write off the main data processing system and three mains power transformers.

"Fortunately," commented Hazuro Igarashi, technical support director at the Malaga plant, "the back-up tape contained a full inventory from the previous night." ■

COMMENT

Two Conservative MPs squabbling over computer security legislation could harm the anti-hackers cause – and the Government won't help.

Hackers all over Britain will fall about laughing this week at the news that two anti-hacking Conservative MPs are busily tripping each other up to the probable detriment of a bill designed to outlaw the practice.

Tentatively cast as the wronged party in this latest fiasco is Michael Colvin, whose recently-published Computer Misuse Bill is due for its second reading on February 9.

Putative villainess of the piece is his back-bench colleague Emma Nicholson, whose own private member's bill on the topic failed to become law in the last session.

To Colvin's dismay, Nicholson plans to propose at least three amendments to his bill, which he believes will overload it with clauses and ensure that it becomes bogged down at second reading. The bill already runs to 19 clauses, which may sound concise compared to most legislation, but actually represents a rather ambitious campaign for a private member's bill.

DIVIDED

The system is heavily weighted against non-governmental bills, and attempts to force through legislation on subjects where opinion is firmly divided – abortion and Sunday trading spring to mind – almost inevitably flounder and are talked out of time.

Without having sight of Nicholson's amendments, it is difficult to say how much they may affect the bill's chances, although off-hand it seems safe to assume that any proposal on the admissibility of computer evidence in court is one that is unlikely to slide through the Commons without rigorous examination.

Looking at the daggers-drawn wrangle from the outside, what is particularly disconcerting is the seemingly-adolescent manner in which the affair is being conducted.

Mental pictures arise of a grimy-kneed master Colvin grasping to his chest a favourite toy not to be shared by the horrid girl next door. There is an equally exasperating image of little miss Nicholson demanding a share of Michael's Super Death Ray water pistol because she has broken her own.

The fanciful picture is in no way weakened by Nicholson's plan for a third 'mystery' amendment which she is not telling anyone anything about until the second reading. Yah, boo, sucks!

In all probability, the simile is an unfair one. But it is virtually incomprehensible to anyone outside Parliament that two MPs – and from the same party at that – who both fervently wish to see hacking outlawed should be attempting to outflank one another at second readings rather than pooling their forces before bills are drafted.

SIDESHOW

Ultimately, though, it is necessary to recognise that this bickering is no more than a sideshow to the Government's blinkered refusal to get off its collective backside and take a stance on the whole area of computer security.

The passage of legislation in the field should not rely on the vagaries of private member's bills or the ability of interested MPs to refrain from bickering about which proposed clauses should have precedence and which should be sacrificed in order to get anything through at all.

The private member's bill is not a sensible vehicle for introducing proposed legislation covering an area as immense and important as the misuse of computers; sadly we must conclude that the Government has not the wit to realise it. ■

FROM The ARCHIVE

ONE YEAR AGO

Commodore astounded the world by announcing a new low-end business bundle, PC cuts, improved financial results and further senior management changes. Or was that the year before? Or the year before that? Anyway, it happened again ...

The shoot-'em-up specialists shot the newly-revealed Konix Multi-System console down in flames when four of the leading software houses revealed they wouldn't be writing any games for it. Since when, not a lot has been heard.

Atari announced the first in the Battlescape series of war games, *Borodino*. Based on the French/Russian Napoleonic battle of the same name it was touted as a 'major innovation' and 'the first of many'. The success of *Borodino* and the subsequent release of *Armada* and *Austerlitz* would seem to bear this out.

Tynesoft launched a new label, dedicated to the theme of horror and cleverly called Horrorsoft.

Although the first game, *Personal Nightmares*, was well received, things were starting to flag until the company signed up the lovely Elvira — who has since lent a certain ghoulish credence to their covers.

***The Sun* nearly wet itself with glee over its 'exposé' of Sir Clive Sinclair's fiancée, Bernadette Tynan. They drooled over her age (at 22 she was younger than one of his children) and gave her IQ as154 — and one of the main reasons why she impressed, "computer whizzkid Sir Clive 'Brainbox' Sinclair".Sadly, the union was not to be.**

TWO YEARS AGO

Ariolasoft announced that it was pulling out of the UK market in the wake of a management buy-out in Germany. The company had failed to meet targets during the vital September to December pre-Christmas period; and longer term had failed to make any real impact on the market.

Having bought PSL the previous September, joystick firm Konix was busily trying to off-load its newly acquired distribution company, with rumours abounding that it had been supplied with "inaccurate or insufficiently detailed information".

The third, consecutive profitable quarter for Activision was announced and sighs of satisfaction heaved over the company's 'rejuvenation'. Following the success of its Macintosh *HyperCard* products, Activision also announced further expansion of its non-leisure activities .
These folded two months ago.

The great clonesoft boom of1988 carried on without W H Smith, when the High Street giant cut back its business software range to half a dozen titles. Having recognised that it was not perceived as a business retailer, the company decided to concentrate on the leisure market.

Telecomsoft and Level 9 were still arguing about their much publicised split. Only three of the original four Level 9 adventures had been released, and Telecomsoft had complained that the graphics were "abysmal" and "dead boring". Level 9 hit back by insisting the split was "amicable" — which spurred Telecomsoft to furious denials.

When both firms started blaming each other for not co-operating on the release of a joint statement at the time the split was announced, it all got quite exciting for a while ...

Sources: ***New Computer Express, Computer Weekly, Computer Trade Weekly, MicroScope, PC Dealer, Computer Talk.***

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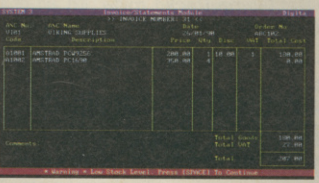
PULL YOUR DIGITA OUT

Jeremy Rhyll, whose name I invariably spell wrong (sorry, Jerry), sent me a copy of *System 3*, Digita International's new three-module accounting system.

Intended for the small business just setting out to computerise, it offers sales invoicing, cashflow control and stock control on one disk. The program is fully menu driven and can hold a fair-size set of accounts.

It can handle up to 999 stock items, 99 customer accounts and the same number of nominal accounts. Up to three separate VAT rates are supported, and invoices can be printed on a standard nine or 24-pin dot matrix printer – printed without headed stationery.

The three modules of the suite are integrated so that issuing invoices automatically removes stock from stock records. The dual-format package – 5.25-inch or 3.5-inch – retails at £49.95, and Digita can be reached on 0395 270273.



• **System 3:** ***it handles a lot with ease***

GRIST TO THE MILL

A few answers to a letter from Mark Beevers may be of interest to all readers. Mark just bought an IBM Model 30 and wants to check which processor it uses and what speed it runs at. There are two model 30s, but from what he says, I think his will be based on an Intel 8086, running at 8MHz.

The MCGA card the dealer fitted to this machine is capable of different graphics modes, including 640 x 480 in 16 colours and 320 x 200 in 256 colours.

Mark has been told that *Timeworks DTP*, which he wants to run on his Model 30, will be slow and hard disk intensive on a 640K machine. His dealer said he should think about upgrading to 1Mb for 'real' performance.

This kind of statement is what we in the trade call 'bullshit'. *Timeworks DTP* runs under GEM, and the only GEM application which can make use of more than 640K is *GEM Artline*. *Timeworks* will run adequately in 512K and better in 640K. It does make quite a lot of use of overlays, which it loads from disk as needed – but it is no slower than any other budget DTP, and faster than many.

Mark's dealer may have been thinking of *Ventura Publisher* (let's be charitable), which can make use of expanded memory and will be speeded by the addition of such. Should he want to use *Ventura* rather than *Timeworks*, Mark would be wise to upgrade to 2Mb. The extra RAM would let him run Windows more effectively, too.

RUMOURS CORNER

While writing about *Timeworks DTP* – there are strong rumours that a new version of the program is in the offing, probably at the end of February. This will not be a replacement for the existing program, but a suped-up version designed to fill the gap between the current version and the likes of *Ventura Publisher* and *Pagemaker*.

Around the same time the world may come to see a new version of the memory-resident word processor, *TopCopy*, revamped to handle fonts in laser printers. I hope it lets one create automatic back-ups as well.

PORTABLE POWER

I now wish I'd paid the extra for a Toshiba T1000 laptop, instead of plumping for the Zenith SupersPORT that I purchased last year.

The screen on the Zenith is certainly better than the Tosh's, the cost of a twin floppy SupersPORT is around the same as the single drive T1000 and to my taste the Zenith keyboard is nicer to use. However, the Tosh has one factor in its favour, one which is seldom mentioned – I certainly did not know it until recently.

The T1000 has MS-DOS in ROM. This means that when you switch on you're met with a A> prompt. It also means that you can perform all the regular functions of DOS without reference to a system floppy. Further, it means that the machine never complains 'can't find `COMMAND.COM`', making the system generally a lot easier to use.

OK, so you can't run CP/M 86 or DR DOS instead of MS-DOS, and you have to ask Toshiba very politely about upgrades DOS upgrades, but for all that – it's the way a truly portable PC ought to be.

JOYSTICKS FROM PARADISE

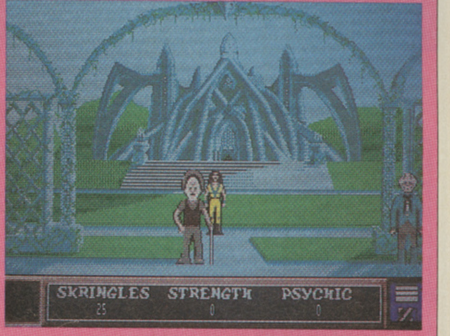
Software Paradise's Nigel Nock faxed in to tell me that his device, contrary to the opinion I expressed last week, 'can easily be coaxed to spring into rigidity'. Further, Nigel's dual-mode joystick 'can be made limp and floppy, or erect and rigid as is required'.

If you'd like to learn more, Software Paradise is on 0222 887521.

Simon Williams

PC GAME of the WEEK

THE KRISTAL



ADDICTIVE • £29.99

It's nice to see the massed ranks of Sierra-style graphic adventures challenged by a British product.

The Kristal, already available on the Amiga is a satire of flower power dressed up as a Buck Rogers-style space opera – combining graphic adventuring with arcade-action swordplay and space flight.

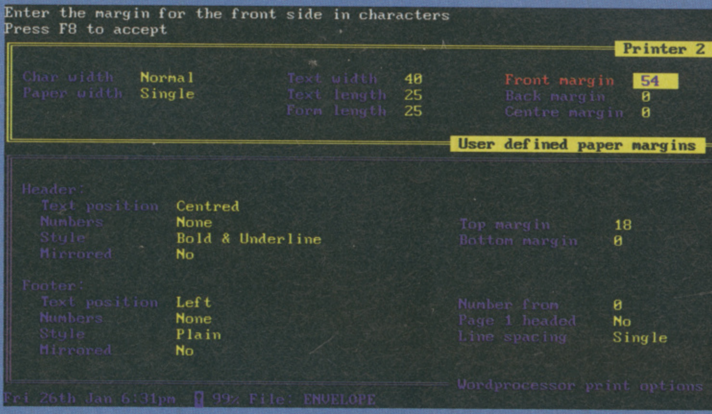
The game is set in a universe of some 10 planets that range from the volcanic Kraan to the icy Glysta to the serene Meltoca (as in 'Camelot', only scrambled). You, as Dancis Frake (sic), must search the planets for the highly prized kristal and return it to 'its rightful resting place'.

Initially the most exciting aspect of the mission is the scenery. The surface of each planet is lavishly depicted in colour on an EGA or VGA display (high definition black and white on CGA), which is easily the equal of any Sierra or Cinemaware title. Travelling between the planets is a little strange though, involving – for some inexplicable reason – shooting up flying goat heads in a rudimentary-arcade sequence.

Dancis Frake cuts a dashing figure, striding about with shoulder length hair bobbing – but many of the other inhabitants look, and talk, like fall-outs from a particularly wet Glastonbury festival. Some will provide sensible answers to your questions, but frequently the response is a mumbled 'Stonehenge', 'Bermuda Triangle' or the ubiquitous 'go with the flow' which can rapidly become a source of frustration.

For the nostalgic, or indeed the spaced-out, *The Kristal* will provide many hours of fun. For the rest of us it lacks the bite of *Leisure Suit Larry* or the depth of *Starflight II*, but certainly looks pretty.

USE PORTEX TO ADDRESS THOSE DL ENVELOPES



```
Enter the margin for the front side in characters
Press F8 to accept
                                                              Printer 2
  Char width    Normal          Text width   40        Front margin   54
  Paper width   Single          Text length  25        Back margin    0
                                Form length  25        Centre margin  0
                                                   User defined paper margins

  Header:
    Text position   Centred
    Numbers         None                          Top margin        18
    Style           Bold & Underline              Bottom margin     0
    Mirrored        No

  Footer:
    Text position   Left                          Number from       0
    Numbers         None                          Page 1 headed     No
    Style           Plain                         Line spacing      Single
    Mirrored        No

                                                  Wordprocessor print options
Fri 26th Jan 6:31pm    99% File: ENVELOPE
```

Earlier this week I tried to print a mail shot, using Showerings' excellent *Portex* personal management software. The mailing list I wanted to activate was already in a *Portex* address file, and, luckily, the program has good mail-merge facilities from its address module out to its word processor.

The only snag was getting the program to print in landscape so that I could address DL envelopes with my HP laserJet II. Envelopes can be fed into the printer from a separate tray or manually using the feed slot on top of each paper cartridge.

To get landscape print I had to edit the *Portex* LaserJet printer driver, `HPLAS2CO.PRN`. I converted this file to a text file, compatible with the *Portex* word processor, using the `PORTPRN` convertor program.

Once converted and loaded into the word processor, I changed the line 'Printer init string' to read:

`<\27\40\115\51\84\27\38\108\54\68\27\38\108\49\79>`.

It is also worth changing the printer name near the top of the file to read something like '`HP LJ2 Cour LS`', thereby distinguishing it from the portrait driver when looking at the Print Options screen in *Portex*.

The margin settings within the word processor also need to be changed to position each address in the right place on the envelope. From the word processor, select [F10] Print to move to the Print Options screen.

Select Edit options for Printer 2 – this leaves the primary printer setup unchanged – and then choose Margins. Set Text Width to 40, Text Length to 25, Form Length to 25, Front Margin to 54 and Back and Centre Margins to 0. In the lower option window set Top Margin to 18 and Bottom Margin to 0.

Switch numbering off and remove any text from the header and footer.

Return to the main word processor after saving options and create a text file which reads:

```
<courier>
<forename> <surname>
<organisation>
<address1>
<address2>
<address3>
<address4>
<address5>
<rom>
```

Select [F10] Mail and enter the name of the address file to print. Each address record in turn appears on the screen and can be selected for printing. Alternatively, the complete list can be printed.

There are, no doubt, more ways to print from *Portex* to a laser printer, but this technique works and enables checking of the setup on A4 paper before committing to DL envelopes.

Remember – when laser printing on envelopes – they must pass straight through the printer into the face up tray. Don't try and turn them 'round the bend' or you're heading for paper jam city.

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		MONO £	EGA £
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(As PC 10 SD but includes hard disk drive)

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MONO VGA	SAMSUNG	ML 2611	12"	P/WHITE	81
MONO VGA	SAMSUNG	ML 4571	14"	P/WHITE	95
MONO A4	SAMSUNG	MP 5671(inc card & drivers)			634
CGA	PHILIPS	CM 8833	14"		219
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EGA	PHILIPS	CM 9073	14"		317
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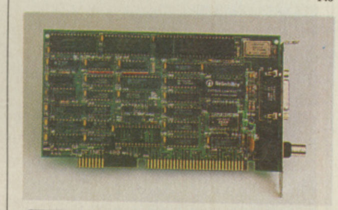

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NEW READERS START HERE

Funny old business, computing. We 'experienced' ST users – and by that I mean anyone who's been using the ST for more than six months – find it very difficult indeed to remember just how baffling the whole business seemed once upon a time.

Do you recall your first glimpse of that peculiar arrangement you've come to know so well – the desktop? Do you remember the days when making a mouse behave was just completely beyond your ability?

Well, at this very moment there are thousands of new ST owners out there in this very quandary. So? you ask, somewhat unsympathetically – hardened as you are by familiarity: why don't they read the manual? Easier said than done, and easier read than understood.

The trouble is that any new computer's manual is always the last job anyone wants to do – and the job that always ends up being done by the people who know the machine inside out. Which takes us back to my starting point, about how difficult it is to remember what it was like...

Now trouble may have gone South, because you can get your hands on *Your Second Manual*, the latest edition of which is now available from Nottingham's very wonderful ST Club.

Written by Andreas Ramos, a Dane with a decidedly, erm, individual sense of humour, this 176-page paperback is essential reading for anyone who does anything more with their ST than play shoot-'em-ups.

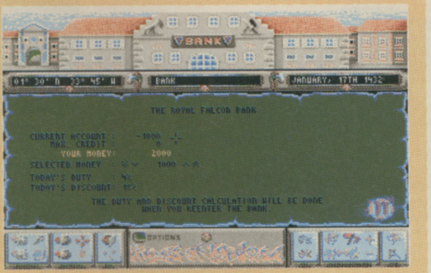
Written and laid out on an ST – on a 4Mb system with *Calamus*; set with a Linotronic using a Mega 2 ST – it is in itself a thoroughly-convincing demonstration of what the ST can do.

From a brilliant chapter on getting started that assumes nothing except the reader's willingness to learn through to a chapter on user groups – what they are and how to find one – Y2M is the business. PD? Bulletin boards? Games? Graphics? It has the lot. Virtually its only fault is that the section on ST magazines is evidently in need of revision: it's a while since Mr Ramos saw *ST Format*.

Your Second Manual is available from the people at The ST Club, 49 Stoney St, Nottingham NG1 1LX. Read it and you'll very soon be one of those people who find it difficult to believe they were ever baffled by their ST. And that is an A-one Steve Carey guarentee! (Could be worse, couldn't it).

ST
GAME of the WEEK

RINGS OF MEDUSA


```
01° 30' N  33° 45' W      BANK              JANUARY, 17TH 1432

                    THE ROYAL FALCON BANK

 CURRENT ACCOUNT :      -1000
      MAX. CREDIT :          0
       YOUR MONEY:        2000
 SELECTED MONEY  :        1000
 TODAY'S DUTY     : 4%
 TODAY'S DISCOUNT: 18%

          THE DUTY AND DISCOUNT CALCULATION WILL BE DONE
                    WHEN YOU REENTER THE BANK.
```

STARBYTE • £24.95

We haven't seen too many hot releases from Starbyte but this may change with *Rings of Medusa* – even if the new game bears a remarkable resemblence to the first level of *Iron Lord*.

The objective is to rid the land of the evil goddess Medusa. However, as she has unearthly powers, it isn't a simple case of tracking her down and thrusting your sword into her gut. Instead, you have the long and laborious job of scouring the land in search of five rings. Indeed finding all five is the problem you must overcome to win the game.

***Rings of Medusa* is set out as a series of nine screens pieced together to form one large landscape. You must move your character – who looks like the pawn in a chess game – around the landscape in order that you might peer into towns and castles. To get as much of the land on screen at once, the sprites are fairly tiny, leaving you with a large area in which to find many castles.**

You move around the map using the mouse – by clicking and holding, the character will follow the mouse pointer. Since you have an overhead view of the land, you can identify a town when you are upon it.

By venturing inside, the landscape view is replaced with a detailed look at the town. Presented with a selection of buildings such as stores, temples, a pub and a bank, you can choose which to explore. In this way you'll be able to buy goods and even borrow money from the bank.

During your search you'll also meet roving armies and these liven up the game because they can wipe out half your team in seconds. Using a set of icons at the bottom of the screen, you can choose to negotiate without war or dispatch different troops if the need arises.

Much of the game, including battling and visits inside the bank and temple, are made of primarily text screens. Graphics are limited to the excellent overhead views of the landscape and a stationary view inside the towns. As a result, the game is frighteningly addictive for the first hour or so – but give it any more time and you'll start to get bored.

In *Iron Lord*, the programmers recognised the lack of interest-holding material and included numerous other levels but in *Rings* – no such luck.

PLAYING TIP

STRIDER

SCORE:000700
TIME075-01

If you want to shoot through the levels in *Strider*, you've come to the right place. Thanks go to *ST Format* reader, Jan Parsonage.

Pause the game using F9 and now press and hold the following keys:
Help + 1 + Left Shift
Release all three together and stop pause with F10. Now press 1-5 to change levels and F1 – F4 to change stage

ST CLUBS TOGETHER

This column is very keen indeed to support ventures such as Dave Dean's user-group-on-disk and Graham Smith's demos library (see below). If you run one, or would like to start one, drop me a sample issue, together with a letter giving full details – charge, address, nature of venture and so on.

I'd be delighted to boost your membership. Send it in: ST Clubs together, Steve Carey, *New Computer Express*, Beauford Court, 30 Monmouth St, Bath BA1 2AP. Who knows, this could be the start of something big!

HARD DRIVIN' IS TOPS

Although the Christmas number one spot is no longer the straightforward measure of which software house has its finger on the pulse of the nation, it is still a much sought after achievement.

Christmas 1989 on the ST – it is now clear – belonged to Domark and arcade conversion *Hard Drivin'*. Despite less-than-ecstatic reviews, it outsold all other ST games in the fortnight ending 30 December. In second place, somewhat surprisingly, stood *Chaos Strikes Back*, Mirrorsoft's *Dungeon Master* add-on.

But if Domark is feeling pleased with itself, mighty Ocean must be smirking all the way to the bank. No less than four of its titles, including *Robocop*, a license that was number one way back last January, occupied places in the Christmas ST chart, with two in the top five. The full ST chart (fortnight ending December 30, 1989) looks like this:

1 *Hard Drivin'* – Domark
2 *Chaos Strikes Back* – Mirrorsoft
3 *Batman* – Ocean
4 *Chase HQ* – Ocean
5 *Ghouls 'n' Ghosts* – US Gold
6 *Ghostbusters II* – Activision
7 *Bomber* – Activision
8 *Untouchables* – Ocean
9 *Turbo Outrun* – US Gold
10 *Robocop* – Ocean

(Chart, copyright Gallup)

DAVE'S PERFORMING DISKS

"I am what you could describe as a 'computerphile'," confesses Hednesford's Dave Dean. "I live for my ST." Sounds like Dave was reading this column a fortnight ago, in which I wrote about such people. "Anyway, my reason for making contact," Dave continues in an inimitable and unhurried style, "is to drum up a few more members for my ST club."

Dave, as one of those rarely found and exceedingly reasonable characters, charges no fees at all for matching up members who either live close together or share an interest in, say, programming. All it costs is the price of the stamp to write in. And there's more – for Dave's group produces a bi-monthly disk, full of PD, reviews penned by members, and art, which, he stresses, is 'tasteful'.

Price? Nothing more than a blank disk. Indeed, the only real criticism I'd make is that the club needs more contributors. So if you've just played a game you thought was sizzlingly fine – or lobotomy-inducingly dismal for that matter – why not write a review and share your opinion with Dave and Co?

If this philanthropic endeavour appeals to you, get in touch with Dave Dean at 5 Alpine Drive, Hednesford, Cannock WS12 5NL, or phone 05438 4102. Tell him *Express* sent you.

FREE FOR ALL

Another such venture is Graham Smith's recently formed Awesome Demos, offering 'a wide range of the very best in ST demos' for nothing more than a blank disk and an SAE.

"The library is really for people who don't have much money," Graham explains, "and don't want to pay £3 for something that really should be free." So if you'd like to get hold of some awesome demos – or would like to contribute some to Graham's library – write to Awesome Demos, 3 Mason Rd, Seaford, East Sussex BN25 3EE, or phone 0323 896767.

STAR LETTER

Confirmed astronomist and ST freak Terry Delaney from Wolverhampton would like to know whether there's anything on the ST that combines both of the aforementioned interests. Indeed there is Terry – or so I'm told. I can't claim to know; in fact, I'm still trying to work out how the universe can be infinite and expanding at the same time.

Anyway, in the public domain for £3 – disk MISC21 from Softville: Unit 5, Stratfield Park, Waterlooville, Hants PO7 7XN – there's *Planetarium*, which, among other things, enables you to dial any position on a world map and see the universe from where you're standing. It works in every resolution, but requires at least a 1040ST.

For a more sophisticated package, with a fully-documented and well-written A4 manual, go for Eric Bergman-Terrell's *The Astronomy Lab*, which is one better than *Planetarium* and works on any machine – er, ST, that is, not toasters or washing machines – again in any resolution. *The Astronomy Lab* is available for the cost of £19.95. Contact the ST Club, 49 Stoney St, Nottingham NG1 1LX.

Try either of these two excellent programs, Terry, and I guarantee you won't be disappointed.

Steve Carey

AMIGA

TIME DOESN'T WAIT

It is certainly true that five years ago there wasn't a single personal computer available that could match the Amiga, but while we've all been sitting around talking about how wonderful 4,096 colours and stereo sound is, machines like the Macintosh have long since left the Amiga behind.

Palettes consisting of thousands of colours and screen resolutions under 1,000 pixels are no longer leading edge. For an example, take a look at how the Macintosh has progressed since the launch of the Amiga.

Back in 1985 the Mac Plus was the best of Mac technology. Then in 1986 Apple launched both the 68020-based Mac II, and the Mac SE. And since the prolific inventors at Macintosh have been pushing ever forward, so that these days we have 68030-based Mac IICXs with multi-million-colour graphics cards that make the capabilities of the Amiga look rather pale by comparison.

After speaking to many producers of Amiga hardware and software, a disturbing trend is becoming apparent. Many (especially those in the States) are not only fed up with the quality of Commodore's marketing and support, but the non-advancement of Amiga hardware is causing people to look elsewhere for machines for which to develop.

So what has happened to the machine that Commodore promised us would be able to keep up with any advancements in technology? Is the Amiga really yesterday's machine? Or is this thinking simply a worst-case scenario?

Saying that our favourite device is out of date is a little unfair – the Amiga still has what could arguably be called the best multi-tasking system on any machine – even the Mac MultiFinder and the PC's OS/2 cannot touch Exec!

The design of the Amiga, too, is still state of the art – the way the Amiga's hardware and systems software is tied together is a masterpiece of computer engineering and is truly a tribute to those lovable guys 'who made, and were Amiga' – Amiga, Inc that is – of the famous and sunny Los Gatos, CA.

The arrival of the ECS, 1.4 (or should that be 2.0?) and the 'Super-Amigas' (A2500/30 and A3000) may help to shorten the gap between the Amiga and its main competitors. But if Commodore wishes to put the Amiga back where it belongs (at the top), then some major changes to the Amiga display hardware will be neccessary.

There have been rumours of a new set of 32-bit graphics chips coming from Commodore that offer tens of thousands of colours and super-high resolution screens. But these are rumours only.

VIRUS ADVICE

Although the common 'boot block' virus is practically exstinct, the IRQ virus still continues to wreak havoc throughout the Amiga world, writes reader Greg D Hewitt-Long. You all probably realize that 'parasite' viruses such as IRQ work by attaching themselves to the front of other programs. If the virus hasn't been loaded into memory when you run the infected program, IRQ will be brought to life before activating the parent.

If you get an advanced warning from a virus killer that an IRQ is in memory, normal procedure is to check the programs within your C and root directories. However, tracking down infected programs isn't necessarily straightforward.

As long as you have a PD killer – such as *KV* – the tracing is not difficult, but there are often cases where the infected program can be disguised. This can happen if a cruncher program is used to pack an infected program.

If the program was infected with IRQ before crunching took place, the crunching process could very well hide the telltale signs that allow the tracking down of such viruses. However, when the crunched program is run, the decruncher that is attached to it will spring into action and restore both the program and the virus.

If you can work out which cruncher was used to pack the program, it may well be worth your while to decrunch the program, run it through your virus killer and then recrunch it. Most recently packed programs are crunched using the excellent *Power Packer* utility that is available from most PD libraries.

SNIPPETS

With the ink barely dry from the last issue of *Express*, it seems that one of my Amiga wish list requests has been granted already.

Those of you searching for a casing that will turn your A500 machine into a glorious A2000 look-a-like will be pleased to know HB Marketing, on 0895 444433, will release one soon.

Jason Holborn

PLAYING TIP

VIGILANTE

Play the game until you get on the high score table and then enter your name as GREEN CRYSTAL (including the space).

Now, playing the game again, you can press F1 for an extra life or F8 to get to the next level.

SCORE 00036600
HI-SCORE 00058000
PLAYER
ENEMY
TIME 176

AMIGA GAME of the WEEK

OVERLANDER

Elite • £19.99

OVERLANDER

A couple of years ago 3D combat games were all the rage around town. You could hardly move for *Roadblasters* look-a likes clogging the shelves of computer stores.

Elite didn't miss the bandwagon either, releasing *Overlander* for the ST quickly followed by a swarm of 8-bit conversions. But, at that time there was nothing to be seen of an Amiga version. Now that we're well into 1990, however, the Commodore-compatible *Overlander* has appeared at long last.

The game is set in the year 2025 (what a surprise), in a world where the human race has ignored the warnings of those gentle soothesayers, the green organisations. In fact, the ozone layer has been completely destoyed, forcing people to make an exodus and to set up camp and live in huge subterranean cities.

To travel between the cities, however, drivers must come up and brave the harsh ultra-violet rays and take to the freeways.

Naturally people would prefer not to do this, so they get the Overlander drivers to do it for them. These drivers live for the thrill of speed. They will do anything to get money to customise their already incredibly powerful vehicles.

You are, of course, one of these drivers, travelling from city to city picking the jobs you want to get all that lovely, lovely money. Half the money is offered up-front, so that you can buy a few pieces of kit before you set out (you're not going to get very far without fuel – are you).

Indeed, taken as a demonstration of programming, *Overlander* is very impressive indeed. The scanned graphics are well drawn and smoothly animated – even the copyright message is in interlace and has a spectacular, specially-designed font.

The gameplay isn't at all bad either, even if it is like a lot of other, similar games. The steering control is quite confortable and the car has enough firepower to get you through, especially with the extra thrust that is to hand.

***Overlander* may not be everyone's cup of tea, or mug of cocoa, or tumbler of gin for that matter, but those who liked *Roadblaster* on the Amiga will absolutely love this new one. I can guarantee it!**

HAM FROM BASIC

Hold And Modify mode is still inaccessible to the majority of AmigaBASIC programmers. Even with the release of HiSoft's Extend, HAM graphics are still seen as 'too complex' for the likes of AmigaBASIC.

However, with the source code below (sent in by reader Niki Murkett), you too can add HAM graphics to your AmigaBASIC creations. Enough wibbling, the code:

```
'**HAM mode from AmigaBASIC**
'**Written by Niki Murkett**

LIBRARY "exec.library"
LIBRARY "intuition.library"
DECLARE FUNCTION AllocMem&
LIBRARY

SCREEN 1,320,200,1,1
WINDOW 1,"HAM MODE DEMO",,,1
PALETTE 0,0,0,0
PALETTE 1,1,1,1
FOR i% = 2 TO 6
    CreateNewPlane
NEXT i%
Ham

'**Demo
DemoLoop:
    x=MOUSE(1):y=MOUSE(2):
     f=MOUSE(0)
    b=INT(RND*16)+16
    r=INT(RND*16)+32
    g=INT(RND*16)+48
    PSET (x-1,y),r
    PSET (x,y),g
    PSET (x+1,y),b
    IF f<>0 THEN CloseNicely
    GOTO DemoLoop
CloseNicely:
    WINDOW CLOSE 1
    SCREEN CLOSE 1
    LIBRARY CLOSE
    END

SUB Ham STATIC
    viewmode&=PEEKL(WINDOW(7)+46)+76
    POKEW viewmode&,2^11
    CALL RemakeDisplay
END SUB

SUB CreateNewPlane STATIC
    bitmap&=PEEKL(WINDOW(7)+46)+184
    bitplane&=PEEKW(bitmap&)*
PEEKW(bitmap&+2)
    wdepth%=PEEK(bitmap&+5)
    IF wdepth%>5THEN EXIT SUB
    newplane&=AllocMem&(bitplane&,65538&)
    IF newplane&=0 THEN ERROR 7
    POKEL bitmap&+8+wdepth%*4,newplane&
    POKE bitmap&+5,wdepth%+1
    IF wdepth%<5 THEN CALL RemakeDisplay
END SUB
```

SPECTRUM

CATCH THIS ONE

Rainbow Arts is best known for producing shameless, unofficial rip-offs of popular arcade games, which is a pity because the original titles it does come up with tend to slip passed unnoticed.

New release *Rock 'N' Roll*, for example, has an addictive gameplay line, and its price – £9.99 – is worthwhile in the economy department.

It's based on guide the ball through various obstacles game's that were the height of popularity in the late 18th Century. Not that much has been done to update the idea, and graphically it doesn't compare well even with its aged predecessors – but, nonetheless, it is strangely addictive and the 32 huge levels means that even the smartest, best co-ordinated 12-year-old games whizz kid will take a few days to finish it.

So, despite the fact that the finished product looks like it had about as much time and money lavished on it as the average episode of *Prisoner Cell Block H*, I like it and if you don't have an allergic reaction with the truly disgusting yellow hue of all the graphics, I'm sure you will too.

AN ANT CAN

Tagren is the kind of name that's only given to horrible German lagers, cheap Taiwanese aftershave or adventure games for the Speccy. Fortunately, it was an example of the latter category that was recently sent to me.

Tagren is the debut release from small, but none the less welcome, newcomers to the fab and exciting world of Spectrum games – Ant Publishing.

It is a predictably-dangerous inter-dimensional world you've somehow transported yourself to and, as per usual with these type of places, Tagren is populated with various unsavoury monsters, wizards and other people you wouldn't approach at a dinner party.

Rather than the traditional text input, however, this one goes for a more arcade-inspired angle with joysick control to move you around the on-screen maze and a limited menu of six commands – Take, Give, Drop, Use, Read and Fight. You're given a rather uninspiring graphical display of your current position as well as a Jeffrey Archer-esque text description and a small window which shows any people or object you might find.

The trouble is, as with most of these attempts at producing an adventure with arcade-style display and menu-driven commands, the finished product isn't as good as either a text-based, traditional adventure or a graphically-based, arcade adventure. Furthermore, I'm afraid I couldn't bring myself to play it enough to see whether or not the £5.95 price tag was earned with lots of complex puzzles.

Still, it is good to see independent labels producing original products rather than the licence-obsessed big-name software houses. I just wish their games were as good. On the bright side – there's lots of room to improve.

Still, *Tagren* is available from Ant Publishing, Unit A, Colne Valley Business Park, Manchester Road, Linthwaite, Huddersfield HD7 5QG.

MASS CLIPPING

The bourgeois, capitalist types who own 16-bit machines seem to be forever going on about clip art and how they have endless fun incorporating the blocky-looking little pictures it describes into desktop-published documents. But now there's no reason to feel left out of the conversation at prestigious computer social events because we Speccy-owning peasants have our very own clip art collection, courtesy of Garner Designs, which seems to have been carving itself an interesting niche in the field of utility software.

The *Clip Art Collection* is a selection of pictures that you can cut out and paste into any pages created on PCG's excellent suite of three DTP programs. Pictures on offer include a Plus 3, 3-inch disk, electronic circuit symbols, an apple, road signs and a CD player.

Unfortunately the collection is only available on 3-inch disk and even then only to members of the Plus 3 Users' Group but, hopefully, that'll change soon. In the meantime, contact Garner Designs at the address printed last issue or ring on 0582 472067.

LEAPIN' FANZINE

The SAM Coupé has only been in people's houses for a few weeks and already a pair of users are so impressed with it, that they've decided to set up a fanzine.

Turbo is a monthly mag, 24 pages thick with sections covering SAM/Spectrum compatibility, games, serious software, adventures and news. Issue One includes a "Good and Bad Things" about the Coupé article and a few listings to take advantage of all those delicious new graphics commands the Coupé has in its armoury.

Editor Adrian Betts has a sworn aim: "To make the Coupé the computer of the 90s like the Spectrum was the computer of the 80s," which is a sentiment I'm sure we'll all raise a glass to. Turbo is available on subscription only at £5 for 5 issues or £10 for 11 issues – SAE for details — from Unit 1, 8 Healey, Lakeside, Tamworth, Staffs, B77 2RF.

Incidentally, if you've bought a SAM Coupé send in your comments – be they good or be they bad – to Robin Alway, *New Computer Express*, 30 Monmouth Street, Bath BA1 2AF.

AND FROM BRISTOL...

If you've been looking for that all-important fashion accessory to put the finishing touches to your dual-purpose, train-spotter computer-owner navy-blue cagoule, I have good news for you.

Tantra Designs of 48 Kensington Road, Bristol BS4 3HU do a very nice ZX Spectrum badge that would make you the centre of attention, envy of friends and a true fashion prophet.

The same wacky outfit also sells computer-generated fractal T-shirts and prints. Unfortunately, the computer that did the generating of these goodies was none other than a Vax mainframe, not a Speccy – but then they look pretty good all the same. Send for a mail order catalogue and prepare to shock the world of fashion.

Robin Alway

PCW

ZEAL OF A CONVERT

One of my pet hates is people who answer questions with 'well, how long is a piece of string'. This is irritating, because it is quite possible to generalise about pieces of string; should a New Guinea stone age tribesperson ask you, you could reasonably tell him that string must be more than six inches to be useful and less than six feet so as not to get too tangled and unwieldy. But, then, he probably knows more about string than you do anyway.

It is not possible to generalise about matters technological in nature, however. And it is even less appropriate to offer sweeping statments in regards disk space, where the essence of the subject relates to what is concretely – or electrically – feasible.

The Bible, for example, takes up around 8,000K on disk; a rather less divinely-inspired book of some 80,000 words might typically require 500K of disk space.

For 8256 owners, with their measly 180K drives, this means that the important publication must be spread over three sides of a disk – very irritating if you want to swap paragraphs from chapter 1 on side A and chapter 2 on side B. What you want is a 720K drive, like on the 8512 and 9512!

Well, you can fit one yourself for around £120. It's dead easy because the PCW 8256 is already set up to expect the extra drive – all you do is unscrew the back, remove the plate below the A drive, plug in the new B drive there and connect it to a conveniently dangling socket, replace the back, and away you go. These memory upgrades add 256K, and with the B drive, turn a 8256 into a 8512.

The memory upgrade costs £35, and Silicon City supply a practice chip and easy to follow instructions. Contact Peter Langford on 0209 891141.

Rob Ainsley

MUSIC OR SQUARES

Your PCW can print out music manuscript paper. Set half line spacing with `(+LS1/2)` and rule lines across the page with `(+UL) (+RA) (-UL)` – replace RA by RJ in *LocoScript 1*. Use [RETURN]s to separate the staves. Use phrases to copy and paste blocks of lines and thus make up staves down the page.

Alternatively, if you want to produce a square grid pattern (for cross-stitching, perhaps, or playing battleships) then set line pitch to 8 with `(+LP8)`, pitch to 17 with `(+P17)`, and underline on with `(+UL)`. Then make each line consist of spaces and upright lines ([EXTRA]full stop in *Loco 1* or [EXTRA]¶ in *Loco 2*, or on the keyboard on the 9512).

MSX

LAUNCHED AS YOU READ

There is news of MSX titles to look out for in the coming months. First, Krisalis Software has two titles soon to be released, *Manchester United*, the football simulator, which is due out at the end of March, and *Rogue Trooper*.

In addition, Krysalis informs me that there will be MSX versions of all future releases and, hopefully, we will see some really cracking coin-op conversions in the not-too-distant future.

Also in March, Audiogenics will launch the now infamous *Emlyn Hughes Arcade Quiz*. Priced at £9.95, it is not a soccer simulation but is, in fact, a kind of trivia quiz game. Music and sound effects are by the computer music maestro David Whittaker – so in this department the game should be well up to scratch. Grandslam's *Peter Beardsley* is now out and, surprise, surprise, it is on the Bug Byte label – priced at only £2.99. It has to be worth a look.

The last item on the software front is actually something for the person who wishes to make more serious use of the MSX, namely a tape-based Database for the MSX 1 computers. This utility is from K-Soft Computer of Retford, Notts and it costs only £6.95. Aditionally, the Database has many features – eg add, load and change records – and it will surely be of use to those who do not own a disk drive.

While I am mentioning K-Soft, I will also pass on the news that they have MSX books for sale. There are six books in total, starting with *The MSX* by Tony Marriot at £5.95; *Starting Machine Code on the MSX* by G P Ridley at £7.95; *Ideas for MSX* by Ken Zetie at £6.95; *Behind the Screens of the MSX* by Mike Shaw at £8.95; *Programming in MSX BASIC* by Dr S J Wainwright at £7.95 and last, but not least, *The MSX Red Book* by Avalon Software, priced at £8.95. K-Soft computers can be contacted at 1 Stanley Street, Retford, Notts DN22 7AE.

A quick PS to the software news – did you know that there are now 12 MSX titles in the KIXX range of games, and that all are priced at £2.99. I'm not going to name them – but if anyone out there can come up with all twelve titles, put the names on a postcard and send it to the MSX column at *Express*. The first one out of the hat will receive a free piece of MSX software. Don't forget your name and address, though.

ITS COLD UP THERE

I have received letters from MSX users who find that they cannot purchase MSX software in their area. This seems to be more of a problem in the north of England, and in Northern Ireland.

If you live in these areas, and can recommend a stocklist of MSX software, please write to the MSX column c/o *Express*. I am compiling a list of all MSX software and hardware stocklists.

Additionally, if you require a copy of this list, send an SAE in to *Express*, and I will dispatch one by return of post.

Keith Neal

BBC

WHAT YOU'RE LIKE

If you're a regular BBC user, and hence reader of my erstwhile jottings, I can – if you'll excuse me – draw a fairly accurate picture of you. You are in your late twenties or early thirties, professional and with a family, members of which also make use of the computer.

Further, your computer is either an expanded BBC or a Master. You word process, make up spreadsheets or compile databases, and you dabble with a little BASIC programming. You don't approve of 'games' but still, when you are in an indulgent mood, you buy Superior's latest for the kids.

How do I know all this? (You may reasonably ask: do I know all this?) Well, I must admit to just the teensiest flight of fancy, but, to my credit, I have seen some response figures – for another magazine, I fear – and they make interesting reading. For example, 70 per cent possess either sideways RAM (SWR) or a Master 128.

SIDEWAYS MOST LIKELY

The reason for my sudden interest in SWR is that I have just swapped my ageing BBC for a B Plus 128. This, for those with long memories, was the machine Acorn introduced as a stop gap in 1985. Originally a 64K system, you could buy a little board with an extra 64K of memory giving you four 16K SWR banks plus shadow RAM.

Seemingly a close cousin to the Master 128, the B Plus falls down in some areas – no ADFS or built-in applications, for example. However, if you're looking for a solidly-built second-hand machine the B Plus has a lot going for it, including surface-mount chips, built-in DFS and pukka Acorn SWR. So let's hear it from the B Plus, my 'blast from the past' for this week. Hip, hip, hooray!

BEST FROM BETT

One of the most interesting bits of new hardware for the BBC that was displayed at BETT 90 is called Music 5000 Universal from Hybrid Technology.

This new box, designed to work with other units in the system, gives quality sound output without the use of external hardware. If the details I've just given seem a little incomplete, that's because at the moment it's all the information I've got. However, watch this space for more announcements coming forthwith.

Moving on, you may not have been aware that Sherston Software, another software house still active in the BBC arena, with no relation to the multinational hotel chain, has gone way down under. No – that is not a new way of becoming bankrupt – in fact, it just means Sherston has set up an arm in Australia. This seems like a nice way to get a sun tan.

Seriously though, customers in that part of the world should now have access to much better deals. And this is no little perk, because I've seen the latest Sherston has to offer on show.

Teletype is an excellent news-service simulation package aimed at the upper-junior or secondary age children market, and *The Concept Kids* for younger children is a suite of three programs using the ingenious Concept keyboard.

Andrew Brown

CPC

SIREN SOUNDS

Siren Software was on the phone just the other day with some very interesting news. It is just putting the finishing touches to a new disk utility that lets CPC owners transfer files to and from PC-compatibles.

The idea is that you save your CPC files onto a 3.5-inch floppy which can then be read by a PC. Any 3.5-inch second drive should do it, such as – ooh, let's see now – the one sold by Siren Software, for example.

It's a really good idea though, and an absolute godsend for anyone who uses a PC at work and a CPC at home. I'll be carrying out a full review just as soon as the program's finished.

COLOUR UPGRADES

Following on from Stephen Burrows' letter last week, I've been doing a bit of phoning around.

You may remember that Stephen approached his local Dixons to find out if he could buy a colour monitor on its own. The manager sold him one for only £99.99!

Well, I've been in touch with the same branch, and that was – alas – a one-off. Nevertheless, a call to Dixons' head office established that the managers of all the chain's branches were at liberty to split remaining CPC stocks at will.

While the CPC was a going concern in Dixons, the machine was sold only as a package. But now that it had been officially withdrawn, ex-display machines could be sold 'according to the manager's discretion'.

Good news indeed. Mind you, the Dixons spokesman reckoned that remaining stocks were now very small. Nevertheless, it's probably worth calling up your local branch just to see – you too might be lucky and find a colour monitor for just £100!

HARD DRIVIN' (YES, AGAIN)

Seven Stars, in case you didn't know, publishes the wonderful *Qualitas* printer package for 9-pin printers.

Well now the company is talking about a new 24-pin printer driver for the CPC. And about time too. That someone wrote one, I mean, not that Seven Stars...

Anyway, the program will be called *Miraprint*, and the idea is very similar to that behind *Qualitas*. The aim is to get much-improved printed output from word processors like *Protext* and *Tasword*, programs which are great for shuffling text around on-screen, but don't have the world's most sophisticated printed output.

Miraprint will offer such goodies as micro-justification, to give even spacing between words, and downloadable fonts. Indeed, eight fonts will be included as standard, together with a font designer for DIY freaks.

Miraprint will work with any Epson-compatible printer, but you will need an 8-bit printer port if you want to be able to download fonts.

Price will be £24.95, and you can find out more from: Seven Stars Publishing, 34 Squirrel Rise, Marlow, Bucks SL7 3PN. Telephone 06284 3445.

PUTTING THE BOOT IN

Footie games are still pouring out. And, while I waited with bated breath for the CPC version of Anco's rave kick-'em-up *Kick Off*, I am sorry to say that Gazza's *Super Soccer* is not terribly good.

Rod Lawton

WIMPY INTERFACE

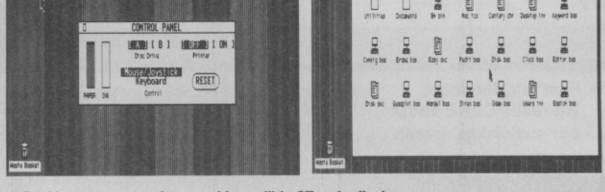
A fascinating bit of PD software has come my way, thanks to Uncle Techtip himself (for it is he).

Desk is an absolutely-brilliant front end for your CPC. If you've seen an Atari ST up and running you'll feel instantly at home. What *Desk* does is reproduce with uncanny accuracy the ST's system of windows and icons. You can select and boot up applications by clicking on the appropriate icon, and store documents etc in ST-style folders. There's even an Atari-esque wastebin in the bottom corner for disposing of unwanted files! The on-screen pointer can be moved about via the cursor keys, joystick or AMX mouse.

A series of menus at the top of the screen lets you access the desktop's various functions. Desktop Info brings up a copyright message, while Catalogue gives you a directory of the disk. Control panel lets you change the colour of the desktop and icons, as well as pointer control method, while the File menu lets you carry out disk housekeeping activities like Rename etc. The View option lets you choose whether to have your files sorted by name or type etc.

In addition, clicking on a filing cabinet icon displays your disk's directory structure. This is no less than astonishing.

Desk hails from DW Software of Withernsea, North Humberside – a PD library owned and run by David Wild. Even as we speak I'm frantically trying to get hold of the guy's address or phone number, if only to see what else he's got. If you're out there, David, give us a bell!



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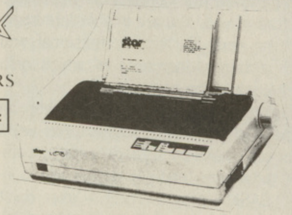

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QL

QDOS DISK FORMAT (PART 4)

The first nine bytes in the physical to logical translate table correspond to sectors 0 to 8 on side 0, and the next nine bytes to the same numbered sectors side 1. There is an additional offset for each track to allow for steps between adjacent racks, so the final sector is calculated by: (translated sector + track * sector offset) MOD sectors/track.

The EOF of a file is the position of the next byte after the end of the file. It is, therefore, 0/40 for an empty file. The block number starts at 0, the byte number is between 0 and 1FF inclusive.

The allocation map is a table giving the usage of each group of sectors. There are three bytes for each group, 12 bits for the file number and 12 bits for the number of blocks in the group, divided by the allocation size. For file number 2, therefore, the first allocation of sectors is identified as 002000 in the map, the next as 002001, etc.

The file number is an index into the master directory, with the numbers allocated as follows:-

000 - Master directory
001+ Normal files
F8x - Sector map
FDx - Vacant sector group
FEx - Bad sector group
FFx - Non-existent sector group.

The master directory is a table of file headers in standard format, but the first 64 bytes of any file hold no information.

This brings us to the end of our investigation of the QDOS floppy disk format. With Toolkit 2 sector read/write functions, you now have all the information you need to read PC disks on your QL, or to recover deleted files and lots of other interesting things. Have fun.

NEW WP FROM DP

Digital Precision has comissioned a new, all-singing, all-dancing word processor for the QL. Written in assembly language, it will apparently be user-configurable, so that it can be made to look like *Quill*, or any other word processor.

A surprising number of firms are still supporting the QL. With about 120,000 QLs manufactured, as many as 50,000 could still be in use world-wide – I estimate – so there is still a healthy market for hardware and software.

MEDUSA

QView, the outfit which developed the Minerva replacement ROMs, is working on a QL clone which will bear the name Medusa. The machine will use a full 68000 processor, with more RAM and optional plug-in interfaces for floppy disks, SCSI devices (such as hard disks) and printers.

I hope Medusa does better than a similar Futura project, which got as far as a working prototype and then folded.

John Torofex

C64

OFFICIAL SECRETS ACT

I've just seen the latest magazine and price list from Official Secrets, and anyone seriously into buying software really would be a fool not to join. Write for details to PO Box 847, Harlow, Essex, CM21 9PH.

I'll just give you a few examples that might convince you to enrol in this excellent club. How about Level 9's *Scapeghost* for £7.99? Or you could add eight Infocom adventures to your collection for £41.92.

However, it's not all adventure games. I see things like *Chessmaster 2100* for £7.99, R-Type for £3.49, Paul Gascoigne *Super Soccer* for £7.99 and the highly addicitive *Tetris* for just £2.49. All of these, I must point out, are disk-only.

Official Secrets also sells other essentials of computer life, like joysticks and printer ribbons, blank disks and solution books, and once again these are at very reasonable prices. As that wise saying has it: 'Don't delay, join today.'

As well as offering all this, Official Secrets deserves a mention for The Release Schedule which contains the expected release dates of new games from major – and sometimes minor – suppliers. The prices OS gives are all full retail, so by the time the game's released and you've set aside your £15, you discover that Official Secrets is offering it for a tenner.

Expected in January are – it says here – *Windwalker* from Mindscape and *X-Out* from Rainbow Arts. So, instead of rushing to the shops and paying the full price, join Official Secrets and save yourself a fortune. Mind you, you'll probably spend one as well.

MORE LANGUAGES

Take your C64 into 1992 and let it learn lots of foreign languages in order that it might converse with its European comrades. Not that many of them will speak Forth, Pascal, C, COBOL, Ada, Logo, Pilot or Video BASIC – but you can. All of these languages are available, for the C64, from Adamsoft, a well-established purveyor of Commodore commodities.

The company resides at 18 Norwich Avenue, Rochdale, Lancashire, OL11 5JZ and, as the advertisements have it, send an SAE for full details. Prices vary from £12.95 for Forth up to £39.95 for Super Pascal or Super C – there should be something to suit every wallet.

A C64 IN A POKE

For infinite lives on *Vindicator*, `POKE 34644,128` and for the same feature on *Fox Fights Back* `POKE 2704,165`. In the game *1943*, for infinite energy for player one, you must `POKE 43368,96` and for the same thing for player two you must `POKE 43506,96`. Keep those pokes coming, by the way

Pete Gerrard

XE

AND THE WINNER IS...

I've been positively overwhelmed with competition entries from prospective owners of *Nucleus*, but, as difficult as I found it, I've managed to pull just one winner from the hat and that lucky 8-bitter is Mr Arthur L Morris of Tregaron, Dyfed. Well done Art, your prize is winging its way to you even as I write.

What do you think of competitions Antic's Roadshow readers? Do you want more or would you prefer fewer? Write and let me know.

DESKTOP BLUES

Haven't you ever looked at the ST and wished that our favourite machine had a 'desktop' just like the 16-bit Atari?

Time was when every small computer booted straight into BASIC the way the XL/XE does, but now, most machines have a user interface which enables them to perform various filing and operating system tasks before (and even while) running other programs.

London-based Atari 8-bit specialist Computer House has devised an add-on board that provides an operating system interface of fonts, default colours, screen messages and a whole host of other things enabling you to create a custom machine interface.

You can also dump screen grabs to disk or printer and examine applications. Sounds exciting, right? Now that the Christmas season is over and things have quietened somewhat, I'm going to try to get a board for review.

Edmund Blake

ARCHIMEDES

A LOT OF KNOWLEDGE

After the short item on *Knowledge Organiser (KO)* in this column a couple of weeks back, Clares was good enough to send in a copy of the package itself.

The program comes on a single disk with a slim, ring-bound manual built-in to a cardboard folder. The manual is concise, but mixes tutorial and reference material in a sometimes confusing way.

Once backed up and run, however, the program installs on the menu bar as normal. Not fully RISC-ware, the program nonetheless is happy to work with other applications installed, and they will restart on leaving *KO*.

The program is of particular value to anyone compiling references, perhaps for a book or thesis. It makes the job of cross-referencing a whole heap easier by maintaining entries in four related files. These detail the extract itself, its source (book or periodical), the subject headings to which it relates (its 'contexts') and the links established for each item within the database.

As data is entered, each piece of text has to be filed under its headings and source. Then, when a subject search is made using a matching heading, the text item is returned as a reference. It works in a similar way to Hypertext, but with an imposed structure.

The text editor is adequate, but the intention is that references will be exported to a word processor for final formatting or inclusion in a document. As well as entering text directly from the keyboard, there's an option to transfer it from a Z88 via a serial link – a good idea for anyone researching in libraries.

KO can search through a text file according to a good set of criteria. To find a reference with links to a number of headings does require repeated searches, though. There's no way of specifying a search for any references linked to heading 1 AND heading 2 in one operation. As *KO* doesn't multi-task, it's not possible to transfer text directly into or out of a word processor, either. It has to be done by file export, which restricts its ease of use and goes against the Arc philosophy.

Even with these flaws, *Knowledge Organiser* is a useful product in an interesting new market. If you need to gather together facts in a flexible way, *KO* will speed the process and work with your favourite word processor.

WATFORD MEMORY OFFER

It is more than gratifying to see that Watford Electronics has continued its pre-eminence as an Arc dealer by offering a series of highly-desirable freebies.

For 'a limited period' the company is throwing in a 512K upgrade with any new A3000, while offering an extra megabyte (2Mb total) and a 20Mb hard disk with the A410/1 – both of which come free of charge.

In addition, all A310s will be bundled with Watford's own Real Time Video Digitiser, and the 440/1 price will include a Taxan 770 Plus Multisync monitor. This seems like a very good time to take the plunge if you haven't already.

QUICK BACKUPS

When making a backup of a disk, it's quicker to go via the MOS, as you can add the Q (quick) parameter to the command, and force the Arc to use all available memory during the transfer.

This often means that a backup will only take a single pass of source and destination disks. The full command is `BACKUP <source> <destination> Q` where <source> and <destination> are drive numbers. You must quit any applications before using this option or risk losing data.

LETTER COMMENT

Three throaty cheers for that noble *Express* reader who refers to himself as Elias Braithwaite (letters, issue 64). This gentleman obviously has the right idea about quite a few things. Could he let a few of his compatriots know the truth about the Arc?

Additionally, would the good editor please consider my application for the position of Real Ale columnist for *Express*? My qualifications include not only an excellent tasting palate (with nose), but I also have an insatiable curiousity when it concerns the proper brewing of my favourite drink. I will travel far and wide on the mere rumour of a good pint. But, that's not all, I am, in addition, the proud owner of a CAMRA guide, which I keep always to hand in my highly-organized Filofax, which itself resides next to my monochromed tankard in my briefcase.

Bertrum Carrot

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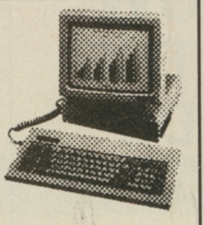

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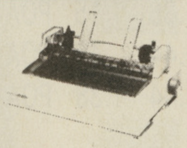

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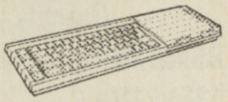

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THE SHOPPING EXPRESS GUIDE TO PC ESSENTIALS

The PC has an enormous range of high-quality software available for it, but the choice can be bewildering. Read on to discover the Shopping Express guide to 50 indispensible programs

There's probably more software for the PC than for all other machines put together, so a comprehensive list is clearly impossible. Choosing 'the best' fifty programs is impossible too – it depends on what you want your PC to do. But here's the *Express* list of the 50 programs we think should be at the top of your shopping list. Word processors, home accounts, spreadsheets, programming utilities... the list goes on and on. We've cut down our categories to include software that you can't afford to be without, at home or at work; the essential PC software.

We give what we consider to be the all-round best program or programs in each section, together with a brief description of each, and a few highlights and drawbacks. There's also the availability details, though as ever, check the mail order ads in Shopping Express first. You're sure to find some excellent discounts available.

WORD PROCESSORS

● PROTEXT V4

£100 • Arnor • 0733 68909

For sheer text and file handling *Protext* stands out. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. For writers and journos this is a must.

▲ Fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter etc
▲ Two file editing

▼ No real graphics capability
▼ Not good at handling complex layouts

VALUE FOR MONEY ★★★★★

● TASWORD

£50 • Tasman Software • 0532 438301

Superb value and fast. A few odd limitations but an excellent basic word processor. *TasSpell*, the spell checker, also available, along with *TasRes*, the memory resident version of the processor.

▲ Memory resident and fast
▲ Easy to customise
▲ DOS shell macros
▲ Word count, notepad features etc

▼ Clumsy text insertion
▼ Some limitations – find and replace won't accept spaces, blocks must be whole lines etc

VALUE FOR MONEY ★★★★★

● CELEBRITY

£80 • Software Paradise • 0222 887521

A well designed word processor with a lot of extras and plenty of appeal for the first time user. It doesn't show the compromises usual with beginner's packages.

▲ Good clear command structure
▲ Calculator, calendar, DOS manager etc
▲ Thesaurus and spell checker
▲ Up to four text windows

▼ Thesaurus US and a bit slow
▼ Window dimensions fixed

VALUE FOR MONEY ★★★★

● MULTIWRITER 2

£115 • NewStar Software • 0245 265017

A very powerful package that includes many features usually found only on really expensive word processors. *WordStar* dot commands can be included directly in a document so this may be ideal for *WordStar* diehards. Lots of extras – author's utilities and a filing program, for example.

▲ *WordStar* compatible
▲ Good menu and context sensitive help
▲ Extras: contents and index generator etc
▲ Filer utility

▼ Filer awkward to use

VALUE FOR MONEY ★★★★

● BORLAND SPRINT

£199.95 • Borland • 0734 320022

A hugely powerful word processor – certainly worth looking at if you need the complete works. Breathtakingly fast with an auto-save feature that means even if the power goes your document has been saved exactly as it was at that moment. Comes with front ends that make it look like *WordStar*, *WordPerfect*, *MultiMate* or Microsoft *Word* if you're used to those packages. A bit complicated to use though and modelled on C, which doesn't help.

▲ User interfaces for *WordStar* etc
▲ Thesaurus and check-as-you-type spell checker
▲ Cross-referencing
▲ Very powerful indexing facilities
▲ Laser and PostScript support

▼ Very complex to use – only get it if you really need all the power
▼ Still a few little bugettes

VALUE FOR MONEY ★★★★★

● MICROSOFT WORD

£395 • Microsoft • 0734 500741

Another of the heavyweights. Packed with every feature you can imagine, but you're paying for it. Easy and intuitive to use for such a high-powered package – ideas outliners, contents/ indexing and footnotes, very good graphics facilities – and of course it runs under windows and OS/2.

▲ All the heavyweight features:thesaurus, spell checker, author utilities
▲ Ideas outliner
▲ Good graphics import facilities
▲ Runs with windows and OS/2
▲ Easy to use

▼ Very pricey
▼ Need a powerful machine – slow unless you have a 286 or 386

● WORD PERFECT

£250 • Sentinel • 0932 231164

Supposedly the biggest selling word processor on the PCs. A huge program with everything you could ever need: thesaurus, spell checker, two column text, footnote and index generation, automatic date insertion, end notes, mathematical symbols etc etc etc. Frankly though a disappointment for the huge price; only any use if you're already committed to the program because of training – or if you can get it on expenses.

▲ Everything you could ever need in a word processor
▲ Exemplary manual
▲ Available on minis, mainframes as well as micros

▼ Vastly expensive
▼ Some very complex keystrokes for functions – must be learned by rote

VALUE FOR MONEY ★★★

● CHIWRITER

£92 • Shareware Marketing • 0297 24088

The word processor for scientists. Originally a shareware product, this word processor lets you design and use predesigned fonts for scientific use. Can cope with any mathematical symbols – even the most complex integrals for example. The most impressive WYSIWYG you'll ever see! Might be worth hanging on a couple of months for the PC version of *LocoScript* though, which will no doubt outperform *Chiwriter* for less money.

▲ Handles any maths – integrals, complex set theory symbols etc
▲ Does foreign characters too
▲ Footnotes and font designer

▼ Limited as a word processor: no mail merge, word count only after spell check
▼ Only one document at once
▼ Hidden extra costs for hi-res or screen

VALUE FOR MONEY ★★★

● TOPCOPY PLUS

£109 • Innova Software • 0453 835379

Big brother of *Topcopy* – a very powerful and well-featured word processor. Verging on the 'big league'. Very fast – memory resident – and keeps everything reformatted as you go. Multi document

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Amiga Class of the 90's	£449

Inc. database, spreadsheet, WP, music, art & design, logo and BBC emulator.

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2 Meg RAM Upgrade, plus in board with on/off switch.

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REPAIRS FOR AMIGA AND ATARI

handling together with the speed of operation makes it ideal for people who shunt text around a lot. good spell check and mail merge too.

▲ Memory resident
▲ Can import text from defined areas of underlying screens
▲ Auto reformats but still fast
▲ Three files on screen at once, handles up to six documents
▲ Spell checker and mail merge
▲ Very fast

▼ One or two useful commands missed (eg. swop letters)
▼ No auto backup of files

VALUE FOR MONEY ★★★★

● GALAXY

Shareware • Advantage/PDSL • 0242 224340/ 0892 663298
One of many shareware word processors that resembles *WordStar.* Doesn't compete with ones you pay a hundred quid for, but for the price you get a usable program ideal for occasional use.

▲ Menus
▲ Spell checker
▲ Bargain price

▼ Restricted power – best for occasional user

SPREADSHEETS

Probably one of the primary uses for PCs, the spreadsheet is the staple of the small business user and some of the best around are available for the PC.

●VP PLANNER PLUS

£172 • Paperback Software • 0245 265017
Fully featured, Lotus *1-2-3* compatible spreadsheet generally held to be the ultimate in PC spreadsheet programs. There's support for a mouse as well as multi-dimensional financial modelling.

▲ Comprehensive
▲ Complex modelling can be achieved
▲ Reasonably priced (there's a cut-down £115 version too)

▼ Difficult to learn
▼ Hard drive and printer required

● LUCID 3-D

£91 • PCSG Inc./Software Paradise • 0222 887521
Cheap spreadsheet from PCSG lacking graphics but with the ability to perform most of the necessary functions. There's no 'minimum hardware' requirement and it's cheap. Also features 3-dimensional linking of cells from different spreadsheets.

▲ Cheap
▲ Linking of separate spreadsheets
▲ No minimum hardware requirement

▼ No graphics

● THE TWIN

£67 • Mosaic Software • 0604 830496
Cheap 'n' cheerful spreadsheet that is the younger sibling of the outrageously named Legend: Twin Level III. The Twin is an almost exact copy of Lotus *1-2-3* at a fraction of the cost of that eponymous program. Well worth 67 quid.

▲ Cheap
▲ All of the features of Lotus *1-2-3*
▲ Powerful graphics

● LEGEND: TWIN LEVEL III

£207 • Mosaic Software • 0604 830496
The spreadsheet that sounds like an adventure game. Burrow deep into the powerful Lotus 123-like features such as 3-dimensional cell linking, graphics and database functions.

▲ 123 features provided
▲ 3-D cell linking
▲ Powerful

▼ Not for the spreadsheet novice

● PC-CALC PLUS

£57 • Shareware Marketing • 0297 24088
Cheap basic shareware spreadsheet that is nonetheless good quality. All necessary spreadsheet functions implemented. You can get a version of this spreadsheet complete with – cut-down – manual for five quid from PC user groups. Full documentation will require registration with Shareware Marketing and the handing over of the full price.

▲ Cheap, cheap, cheap
▲ Easy to learn
▲ Available from user groups

▼ Basic

DATABASES

Everyone needs a database. From business use such as motor car parts, baked beans stocks and can opener suppliers to home uses such as stamp and record collections and train number cataloguing.

● DBASE IV

£595 • Ashton-Tate • 01-5699768
The database that's got it all. Spawned a huge range of clones for many other machines. Complex and all reaching, dBase is a database-specific programming language that allows you to build filing programs tailor-made.

▲ Complex
▲ Can be tailored to suit individual needs
▲ Industry standard

▼ Expensive
▼ Not for beginners

● DBXL 1.2 DIAMOND RELEASE

£115 • Software Paradise • 0222 887521
dBase clone featuring all the abilities of the original with a better text editor, variable arrays and user defined functions at an affordable price.

▲ Cheap
▲ Very powerful

▼ Difficult to master
▼ Not for beginners

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Joysticks	£13	QL ICs & Spares	Ask
Centronics Interface	£24	QL Serial Printer Leads	£12
Cartridges £4.50 ea. 10 for	£40	Wallets of 4 Cartridges	£19
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● TAS PLUS

£120.75 • Megatech • 01-874 6511

Powerful database that allows you to spread a database over many files. It's programmable, relatively easy to use and cheap.

▲ Fully featured
▲ Easy to use
▲ Cheap

● HYPERPAD

£114 • Software Paradise • 0222 887521

Apple Macintosh users have long had the opportunity to use the definitive associative database handling of *Hypercard* based on the concept stacks of interconnected cards each containing various data, programs etc., all accessible via a serious of icon 'buttons'. And now, at last, this power is available to the humble PC user with Software Paradises *Hyperpad*. All the features of the original system are here.

▲ Comprehensive
▲ Easy to use
▲ Moderately priced

▼ Setting up may confuse absolute beginners

COMMUNICATIONS

Got a yen to communicate with your fellow PCers? Need to transfer data around the planet? Maybe you want to connect several computers together to maximise your peripherals?

● THE $25 NETWORK

£25 • EQ Consultants • 0334 84248

Networks abound at the moment but you'd be hard pushed to find one that would set you back less than several hundred pounds, before, that is, the release of The $25 Network from EQ Consultants. For the tiny figure of 25 quid (EQ alas, hold no stock in exchange rates) you can join two PCs in perfect harmony, to have and to hold, from this day on...

▲ Amazingly cheap
▲ Everything you need (except a cheap null modem cable)
▲ Easy to use

● CALLBOX

£171.35 • Callbox Ltd • 0600 4478

A program which takes control of your telephone allowing you to perform all manner of snazzy dialing functions, number recalls, auto calls etc. All this for only one hundred and seventy one pounds, wow!

▲ Cheaper than equivalent hardware (i.e. telephone)

▼ Breath-takingly expensive
▼ Only for those without the energy to dial a number

● LINK MASTER

£19.95 • Amstrad Software • 0277 230222

Billed as the 'complete kit for file transfer between two PCs' thereby implying a hard/software cast of thousands, Link Master is a cable and bit of software for £20 that allows you to transfer files between two PCs. Why not just use floppy disks? Or, perhaps that would be asking just a little too much (perhaps it wouldn't)

▲ Cheap
▲ Easy to use

▼ Superfluous
▼ Unnecessary (unless you have machines with wildly differing drive formats

● PROCOMM PLUS

£59 • Shareware Marketing • 0297 24088

Fully-featured general purpose communications program for use with modems. The program supports the industry-standard Hayes command language and seven file transfer protocols. There's an earlier version known as Procomm which can be had from the same supplier for a few quid.

▲ Reasonably cheap 'n' cheerful
▲ Hayes compatible
▲ Plenty of file transfer options

ACCOUNTING

The serious side of the PC. And let's face it, if you've spent the enormous sums necessary to buy the computer system, your going to need to save money somewhere.

● MICROSYSTEMS

£454 • Multisoft • 0420 85572

Very powerful accounting package emanating from well-known accounts software writers Multisoft. Menu driven programs ensure ease of use and give access to virtually every possible accounts function necessary. There's some extremely good help screens too in case you should encounter difficulties.

▲ Menu driven
▲ Fully featured
▲ Easy to use

▼ Too expensive for the home or small business user

● A-B-C

£299 • A-B-C Systems • 01-661 0488

Quality accounting package that has the distinction of sporting a word processor, database and spreadsheet as well as the accounting module. All the features of a professional accounts application are built into A-B-C as well as good after sales service and help.

▲ Built-in word processor, spreadsheet and database
▲ After sales service
▲ Can be used on single disk systems

▼ A little expensive for home users

● PENNYWISE

£50 • Buzzz Software • 0865 56083

Simple to use, affordable accounts analysis software for the home and small business user.

▲ Cheap
▲ Easy to use

▼ Lacking in features
▼ For the smallest of businesses

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▼ Not cheap if you're a home dabbler

● RETAILER

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● TAXCALC

£19.95 • Consumers Association • 0800 252100
Cheap personal tax planner which has some very good built-in help screens and the printout of which you can send directly to the Inland Revenue.

▲ Very cheap
▲ Easy to use
▲ Suitable for beginners

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● FREEDOM OF PRESS

£431.25 • Ctrl-Alt-Deli • 0908 662759
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▲ Uses ordinary cheap dot matrix printers
▲ Lots of features

▼ Beyond the budget of the average home user

● NEWSMASTER II

£70 • MGA Microsystems • 0233 83571
Straightforward, unpretentious little desk top publisher, providing most of the features necessary to produce newsletters, propaganda pamphlets, communist diatribes etc.

▲ Cheap
▲ Clip art library
▲ Can import graphics

● FINESSE 2

£171 • Logi UK • 0925 413501
GEM-based, *Ventura* look-alike providing many of the abilities of the original for a fraction of the price.

▲ GEM/3 included
▲ Sensibly priced
▲ Good graphics import

▼ You must have a mouse

● TIMEWORKS DTP

£129 • Electric Distribution • 0480 496789
Another desk top publisher with slightly more than a passing resemblance to industry-favourite Ventura. Lots of features, can use standard dot matrix printers and has a copy of GEM/3 included.

▲ GEM/3 included
▲ Powerful
▲ Reasonably priced

● VALUETIME RANGE

£9.95 each • Electric Distribution • 0480 496789
The valuetime range provides you with the necessary tools to produce signs, banners greetings card etc., for a very reasonable price. Results can printed on a standard dot matrix machine. The packages are Signs and Banners, Greetings Cards, Calendars and Stationery.

▲ Very cheap
▲ Very easy to use
▲ Good results can be obtained

LANGUAGES

Don't buy commercial applications programs, write your own...

● ZORTECH C V3.00

£57.44 • Zortech • 01-316 7777
Professional quality C compiler from well-known language producer Zortech. The package is cheap yet fully-featured. Very fast.

▲ Fast
▲ Cheap
▲ Widely available

▼ Standard C tutorial text necessary

● DBFAST

£113.85 • Megatech • 01-874 6511
dBase clone at a fraction of the price of the original program. This is not for beginners but fortunately there is a small planet's worth of dBase text books on he shelves of your favourite bookstore. What are you waiting for?

▲ Very cheap
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● QUICKBASIC

£98 • Microsoft • 0734 576744
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● TURBO PASCAL V5.00

£115 • Borland UK • 0734 320022

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▲ Powerful
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▲ Can used on single drive systems

▼ A little overpriced

GAMES

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● 688 ATTACK SUB

£29.99 • Electronic Arts • 0753 46465

Send a mass of Eastern Bloc seafaring metal to Davy Jones' locker. Alternatively, take command of Soviet Russia's latest submarine and go fascist hunting. Either way, this game provides everything necessary for superior submarine simulation. Ahoy m'heartys.

▲ Wonderful graphics
▲ Complex
▲ Quality gameplay

▼ VGA necessary for best display
▼ Expensive

● FLIGHT SIMULATOR 3

£52 • Microsoft • 0734 500741

The latest in a long line of definitive flight simulators from MicroSoft for the PC and its compatibles. This program has it all for those looking for quality simulation rather than blood 'n' guts. Expensive, but then the best always costs more. Invest a few quid here.

▲ Super graphics
▲ All controls found in a real aircraft are simulated
▲ Lots of places to fly around, through, up and over.

▼ Expensive

● ELITE

£24.95 • Firebird Software • 0666 504326

Originally for the BBC micro and now available to discerning PC game players everywhere. Improved graphics and speed but a similar plot (nothing wrong with that I hear you shout!).

▲ Old faithful too good to be missed
▲ Wonderful graphics
▲ Fast

▼ Expensive (the eternal PC games criticism)

● F-19 STEALTH FIGHTER

£39.95 • MicroProse • 0666 504326

Another flight simulator but this one pits you fairly and squarely against an attacking enemy bent on destruction. Good graphics and good fighting action make this a superior offering.

▲ Complex
▲ Good graphics

▼ Expensive
▼ A little boring in the early stages

● INFOCOM ADVENTURES

£24.99 to £34.99 • Infocom/Mediagenic • 0734 311666

Here they are. The definitive text adventures from Infocom. Renowned by by those who like to grub about in haunted houses, caves etc., the world over. Good plots and lots of puzzles to solve.

▲ Complex plots
▲ Intelligent dialogue
▲ Excellent input parsing

▼ Far too expensive

● UNIVERSAL MILITARY SIMULATOR

£24.95 • Rainbird • 01-240 8838

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▲ Complex situations can be simulated
▲ Any and every altercation from the dawn of time can be played to its (un)natural conclusion

● TETRIS

£19.95 • Mirrorsoft • 01-928 1454

Tetris is a simple but highly addictive game in which you have to arrange into lines a series of tumbling coloured blocks into to clear screens and amass points. Defying categorisation the game has the added novelty of emanating from the USSR.

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PC100-8088 640K HD30	£659	£899
MINI-S 640K S/D	£479	£779
MINI-D 640K D/D	£499	£799
MINI-H 640K HD20	£899	£1199
AT286-10 640K S/D	£799	£1099
AT286-10 640K HD30	£1099	£1359
AT286-16 1MB S/D VGA		£1399
AT286-16 1MB HD40 VGA		£1759
AT386-16 1MB S/D	£1199	
AT386-16 1MB HD40	£1549	
AT386-20 4MB S/D VGA		£2229
AT386-20 4MB HD40 VGA		£2559
AT386-20 4MB HD80 VGA		£2999

SCHNEIDER

MODEL	MON	COL	EGA
EURO PC	£349	£489	
EURO AT 512K S/D	£675	£805	£890
EURO AT 512K D/D	£765	£895	£980
EURO AT 1MB S/D	£761	£891	£976
EURO AT 1MB D/D	£851	£981	£1066
EURO AT 512K H/D	£975	£1105	£1190
EURO AT 1MB H/D	£1061	£1191	£1276

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20Mb External Hard Disk	£269
40Mb External Hard Disk	£379
Monitor Stand	£14

All Schneider PC's & AT's include
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+ 12 months on-site warranty.

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PC10 Bundles inc. Framework, mouse & MPS 1230 Printer			
PC10-D/D	£740	£896	£1013
PC10-HD40MB	£896	£1013	£1130
PC20 III-HD 640K	£631	£749	£868
PC30-286HD 640K	£935	£1052	£1130
AT80286 COMPATIBLE - VGA'S			
PC40-40MB 1 MB	£1291	£1462	
PC40 + TAPE	£1559	£1759	

Includes 12 months on-site warranty

PORTABLES

MAKE	MODEL	PRICE
AMSTRAD + Phone	PPC512S	£360
AMSTRAD + Phone	PPC512D	£467
AMSTRAD + Phone	PPC640S	£445
AMSTRAD + Phone	PPC640D	£552
SHARP	4602	£863
SHARP	4641	£1463
SHARP	5541	£2330
SHARP	7221	£1699
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SUPERSPORT 286	20MB	£2237
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TURBOSPORT 386	40MB	£2797
AKHTER 286-3200	20MB	£1695
SCHNEIDER	PC7640	£1418
SAMSUNG S5200	32MB-AT	£1693
VICTOR V286P	30MB	£2499

AMSTRAD

MODEL	MON	COL	EGA
PCW8256	£310		
PCW8512	£395		
PCW9512	£424		
PC1512SD	£360	£437	
PC1512DD	£437	£513	
PC1640SD	£451	£536	£621
PC1640DD	£512	£597	£682
PC1640HD	£682	£768	£853

	Mono	Col	12"	14"
PC1286SD	£750	£835	£920	£1005
PC1386SD	£1180	£1265	£1351	£1436
PC2086SD +SOFT	£531	£617	£702	£787
PC2086DD + SOFT	£595	£680	£765	£851
PC2086HD + SOFT	£765	£851	£936	£1021
PC2286DD	£851	£936	£1021	£1106
PC2286HD	£1021	£1106	£1191	£1276
PC2386HD	£1702	£1787	£1872	£1957

All genuine models not upgraded in any way

HYUNDAI

Note, Base units only.
Monitors are separate.

Model	Mono	Col	EGA	VGA
SUPER 16-TE PC/XT 640K 10Mhz Metal Case				
Super 16-TE S/D	£361	£361	£455	£511
Super 16-TE D/D	£430	£430	£524	£580
Super 16-TE HD30	£561	£561	£655	£711
286C 8/10MHZ 512K RAM				
286 S/D	£749	£749	£749	£859
286 HD30	£949	£949	£949	£1059
386SX 8/16 Mhz 1MB RAM				
386 S/D	£959	£959	£959	£1069
386 HD30	£1159	£1159	£1159	£1269
386C 8/20 Mhz No Wait States 1MB RAM VGA				
386C S/D	£1279	£1279	£1279	£1279
386C HD40	£1599	£1599	£1599	£1599

SAMSUNG

All the following Systems are without
Monitors. Please refer to monitor box.

Model	Mono	CGA	EGA
PC/XT			
SPC3000/1 S/D	£405	£405	
SPC3000/2 D/D	£473	£474	
SPC3000/3 HD20	£677	£677	
AT80286 10Mhz			
MFC6000/1 S/D	£812	£812	
MFC6000/2 S/D	£1015	£1015	
SPC6500/3 HD20	£1151	£1151	
AT80286 12Mhz 1MB VGA			
SPC6512/1 S/D	£1015	£1015	
SPC6512/3 HD20	£1219	£1219	
SPC6512/4 HD40	£1354	£1354	
AT80386 20Mhz 2MB EGA			
S800 D/D	£1693	£1693	£1693

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on-site maintenance.

MITAC

Model	Mono	Col	EGA
88 512K	£586		
88 20MB HD	£790		£1102
1000L PS/2	£730	£930	VGA'S
1000L PS/2	£963	£1163	VGA'S
286SL HD20	£1030	£1209	£1332
286SL HD42	£1163	£1342	£1465
286V HD42	£1463	£1663	VGA'S
286V HD102	£1930	£2130	VGA'S
286VE HD42	£1596	£1796	VGA'S
286VE HD10	£2063	£2263	VGA'S
386 HD42	£2330	£2568	VGA'S
386 HD102	£2796	£3130	VGA'S

All MITAC Systems come complete with 12
Months on-site warranty.

VICTOR

MODEL	MON	COL	EGA	VGA
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VPCIIC D/D	£1099	£1299	£1549	£1599
VPCIIC HD30	£1499	£1699	£1949	£1999
V286C S/D	£999		£1299	£1499
V286C D/D	£1499		£1799	£1999
V286C HD30	£1999		£2299	£2499
V286C HD50	£2199		£2499	£2699
V286A HD30	£2099		£2549	£2599
V286A HD50	£2299		£2749	£2799
V286S HD50	£2499		£2949	£2999
V286S HD70	£2699		£3149	£3199
V386S HD50	£3299		£3749	£3799
V386S HD70	£3699		£4149	£4199
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V386S HD230	£5299		£5749	£5799
V386T HD70	£5999		£6449	£6499
V386T HD230	£7699		£8149	£8199
30MB ADD-PAK	£399			

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	7513 £77		9043 £261	9043 £261		9809 £374	
	7913 £81		9053 £296	9053 £296			
SAMSUNG	2573 £76	4573 £85		4531 £299	2611 £85	4531 £299	4551 £397
AMSTRAD	12MD £119		14CD £199		12HRCD £294	14HRCD £383	
AKHTER	ACL12G £60	ACL14G £85	VISION £199	ACL-3 £259	ACL-VM £110	ACL-V £289	ACL-M £355
HITACHI						480 AUTO £358	

Notice: All Samsung Monitors come with
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1MB External Disk Drive Atari	£71
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STAR LC15	180/45	£249
STAR FR10 ★	300/76	£289
STAR FR15 ★	300/56	£379
24 PIN DOT MATRIX		
STAR LC24-10	200/67	£189
STAR LC24-15	200/67	£319
STAR XB24-10 ★	240/80	£375
STAR XB24-15 ★	240/80	£495
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KXP 1180	192/36	£144
KXP 1592	216/45	£249
KXP 1595	288/65	£309
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KXP 1124	192/63	£220
KXP 1540	288/65	£400
LASER PRINTERS		
KXP 4450 ★	11PPM	£1269

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180E SER	175/30	£149
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MSP40	240/40	£199
MSP45	240/40	£239
MSP50	300/60	£285
MSP55	300/60	£399
24 PIN DOT MATRIX		
HQP 40	200/65	£259
SWIFT 24	160/60	£245
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OVERTURE 112	12PPM	£1289

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LX850	240/48	£178
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EX1000	300/60	£530
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LQ400	180/60	£189
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LQ850	264/88	£394
LQ1050	264/88	£543
LQ860	290/88	£499
LQ1060	290/88	£639
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LASER JET IIP	4PPM	£879
LASER JET II	8PPM	£1248
LASER JET IID	8PPM	£1879

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DM282S	240/40	£245
DM292S 136 col	240/40	£307
DM250	240/60	£402
DM250L 136 col	240/60	£458
DM400 136 col	400/100	£867
DM704 136 col	400/100	£1053
DM309	360/66	£269
DM309L 136 col	360/66	£356
LASER PRINTERS		
PG 306 ★	6PPM	£899
PG 208 ★	8PPM	£1199
PG 303 ★ Postscript	8PPM	£2595

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MODEL	SPEED	PRICE
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CANON LBP8 IIIT	Dual Bin	£1815
CANON LBP8 IIIR	Duplex	£1923
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KYOCERA F1000	10PPM	£1459
KYOCERA F1200	10PPM	£2369
KYOCERA F2200S	10PPM	£2569
KYOCERA P2000	10PPM	£3969
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ACL 135 10"	135/27	£119
ACL 480 10"	480/55	£299
ACL 700 15"	480/55	£399
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Hyundai 1810 10"	240/100	£229
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HISOFT CPM Pascal Compiler £15. Hisoft CPM Operating System £15, both excellent software packages on +3 disk. Mr Galloway, 051-427 8867.

SPECTRUM plus three with joystick and games disk v.g.c. In box £100. 051-427 8867, Mr Galloway.

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BOOKS for C16+4 User Manual £4. Word Proc'r Manual £4. Ram Delta Joystick £7. Atari XE cartridge Computer War £6. C64 Music Maker £5.50. (W. Lancs) 0695 32818.

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AMIGA Contacts wanted. Write to Simon, 30 Diamond St., Saltburn, Cleveland, TS12 1EB or Call (0287) 24167.

AMIGA contacts wanted 100% reply fast and reliable. All welcome write to: Steve, 4 Stopgate Lane, Aintree, Liverpool L9 6AP.

AMIGA contacts wanted all around the world to swap latest stuff. Write to: Tariq Al-Ali, PO Box 66957, 43760 Bayan, Kuwait. 100% reply. Hi Mad M.

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AMIGA newcomer, contacts wanted, usual stuff – swap games, tips etc. Where do I get cheap disks? Write to Kev: 20 Cypress Avenue, Ellesmere Port, Cheshire LG6 2UU.

AMIGA owners in Nottinghamshire! Please mail details to help create a local user network. S.A.E appreciated. Replies guaranteed. Be patient! Mansfield A500, 4 Poplar Street, Mansfield Woodhouse, Mansfield, Notts NG19 9LB.

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AMIGA users contact Andy at 80 Central Drive, B'Pool, Lancs, FY1 5QD, England to get demos, utils, tips for the Amiga‼!

AMIGA users group. Every Thursday night in South East London. All welcome, beginners, male or female, also wanted. Programmer to help with club. Contact: Alan, 01 708 0146.

ANY computer users who use Klaver Music Notation interested in forming/joining a user group; ring Mike on 01 520 5223.

BBC contacts wanted to exchange software, hints, tips etc. All letters replied to, write to K. Scotney, 17 Cromer Avenue, Burley, Lancs BB10 3HA.

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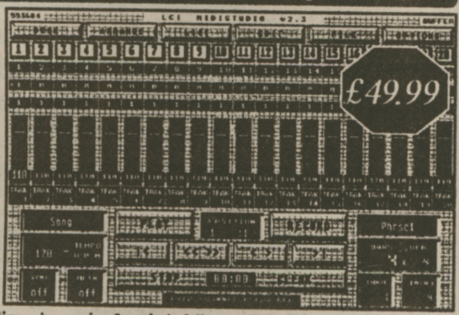

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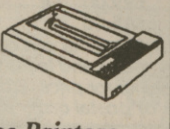

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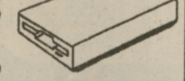

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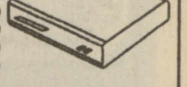

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DOES anyone know of an ST user club in the Wirral/Merseyside area that is open to membership? Please ring 051 678 8519.

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FAST Amiga contacts wanted, repeat fast! Send Discs or Letters to: Andy, 35 St Annes Drive, Aylestone, Leicester LE2 8HU.

GWYNEDD, N. WALES. ST User Group. I want to get in touch with all local ST Users to form a new group. Contact S. Rammerling, Clogwyn Plas Gwyn, Pwllheli, Gwynedd, N. Wales, LLS 36UA.

HYPERPAD – interested in forming a user group? SAE to Dave Langstaff, 78 Harrison Road, Swaythling, Southampton, SD2 37J.

IF You want to spread your groups in Asia. Send your latest + your demos to: Tariq, P.O. Box 3581 Safat, 13036, Kuwait. 100% reply, Amiga Only. Also will swap spot.

INTERESTED in joining a Kick Off League in London? With trophies for winners? Contact Ray at 30 Windsor Crescent, Wembley Park, Middlesex, HA9 9AW or ring 01 904 0555 between 6pm-11pm.

IS there a Clipper/DBase 3+ User Group in London? I will be grateful for any details. Guy Ellis, 23 Sussex St., Pimlico, London, SW1V 4RR.

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KENT youth computer group at the Bowen Youth Centre, Kingsnorth Road, Ashford, Kent. All makes of computer. Write to Kris for details.

LAMER? Want to swap software, tips, demos and form a Lamers against Lamers Society? Then contact, Faisal Patel, 73 Track Road, Batley, W. Yorks, WF17 7AB.

LIST the low income ST User Group for students and the unemployed send two blank disks to Marcus, 9 Days Green, Chapel Street Mary, Ipswich, Suffolk IP9 2HZ for details.

NINTENDO contacts wanted for swaps and setting up of User Group! Write to: Ashley Middleton, Amberley, Park Drive, Little Aston Park, Sutton Coldfield, B74 27A, 100% reply.

PC200 user I think it's OK! Did you buy the other one? What do you think of it? Give me a ring 0432 266451 Neil.

PCW Users Interested in P.D. send S.A.E. to: PCW-File, 18 Sunbrow,Haslemere, Surrey GU27 2QP. The PCW-File is on Boog BBS 0252 626233, 24hrs, V21/V23. No Fees.

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ST contacts wanted if into Agtomation or any other, then write or phone 110% reply, almost. Lee Edwards, 24 Topllan Road, Glan Conwy Clwyd, LL28 5NP tel: 0492 580447.

ST user: Help!, I'm Australian and have just bought an ST (used to own a C64 in Oz) Anyway, I am looking for good contacts and also anyone in Bradford interested in starting a users group. Contact David Marshall, 5 Highfield Road, Five Lane Ends, Bradford, W.Yorks.

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ARABIAN Amiga user would like to swap with other contacts. Will pay if necessary. Write to: Tariq Al-Ali, PO Box 66957, Bayan, 43760, Kuwait. Hi Clyde.

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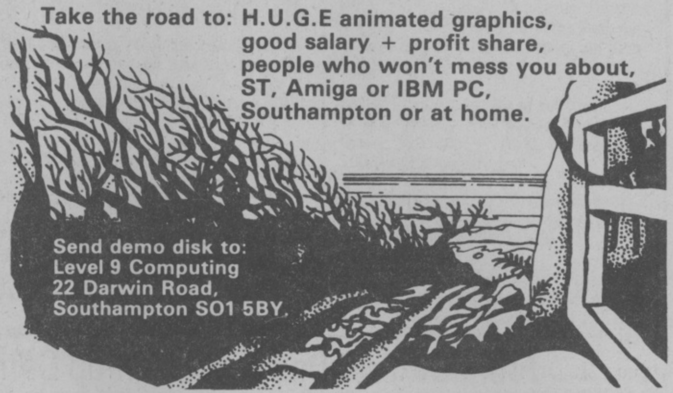

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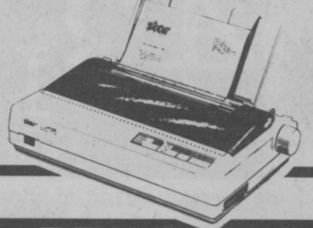

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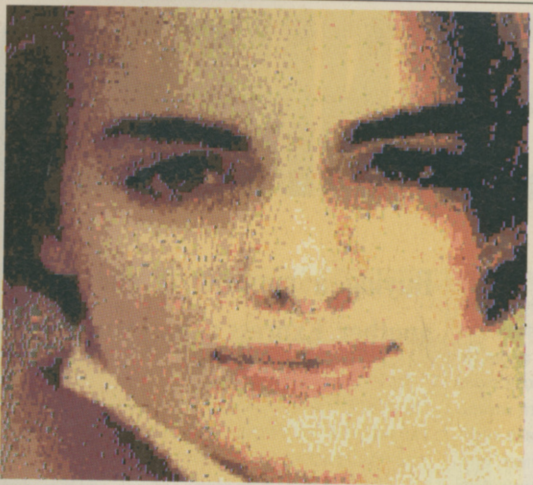
GRABBING THE COLOUR

Third Coast's Realtiser Professional claims to make high-quality colour video grabbing possible on the Atari ST. Mark Higham colours in the details.

• REALTISER PRO 8900

ST • £150 • THIRD COAST
0257 426464



• Grabbing an image means setting up your camera and playing with different filters, but the result is colourful. But you still won't be able to throw away your paint package. The image here was touched up using Degas Elite.

Until recently you could not grab colour pictures on an ST. Dragging the ST into colour meant using a mono digitiser and a camera to grab the original image, and then slaving over the draw and fill features in your favourite paint package.

Even so, the quality and speed of digitising has steadily improved to the point that Rombo's Vidi ST will grab images virtually in real-time, and at a high-resolution when used with a monochrome monitor. But although Rombo has been promising a colour add-on for some time, it has yet to arrive.

But now Third Coast has come up with the goods, with a machine imported from Germany. Pro 8900 will produce quality monochrome grabs to the same standard as Rombo's device, but colour is what elevates it to stardom. However, glory doesn't come cheap: at £150, the Pro 8900 is £50 more expensive than other digitisers on the market.

FILTER TIPS

The Pro 8900 package consists of a cartridge, filters and controlling software. Instead of combining colour and monochrome versions all in one program, there are different programs available depending on your requirements. For example, there are two monochrome versions – one grabs high-resolution black and white images when used with a mono monitor while the other grabs them at lower quality on a television or medium-resolution monitor.

To use the digitiser, you'll also need to lay your hands on a monochrome camera. Setting up the hardware is remarkably easy. All you need to do is take a lead from the camera, plug it into the digitiser cartridge and then plug the cartridge into your ST.

HOW IT'S DONE

Although only a monochrome camera is used, colour grabs are possible through the use of colour filters. Digitising is performed in three stages – red, green and blue. Placing the red filter over the camera lens and then clicking on 'Red Digitise' grabs the red found in the picture. Not only pure red areas of the image are grabbed but also the red shades found in other colours such as purple. By repeating this with blue and green filters and then combining all three images, a full-colour picture is obtained. Although the process is fiddly, it does cut down on the expense of a colour camera.

The software is surprisingly easy to get to grips with. To digitise, you go to the 'Digitise' drop-down menu and select each of the colours – red, green and blue – in turn. Another menu gives you the option to combine the three images and display the result.

This professional version of the Realtiser differs from its predecessors in the way the digitising takes place. Previously, the screen was filled almost instantly with the image and any movements seen by the camera were shown on screen. When you were happy with the display, you pressed [ESC] and this image was assumed to be the correct one.

Here, digitising takes place more slowly. The screen gradually fills from left to right with the image seen by the camera. Although this method means the image must be kept perfectly still for longer, the result is a much higher quality picture. Since red, green and blue grabs can be made in any order and at any time, if you spot any problems, you can go back and grab just one colour.

For the first few experiments, this is all you will use. But later you will find the 'Preferences' option a big help. This gives you the opportunity to change the amount of red, green and blue seen by the camera, as well as varying the saturation level – set it high for a brighter image. The preferences only affect the grabs as they are made and won't alter existing pictures.

To alter existing grabs you have the 'Change Colours' option where you are able to toy with the colour palette. In the final picture, the colour palette is adjusted to translate the wide spectrum of colours found in the image into 16 ST colours. You can change the shade or colour of any of these and then save it in Degas or *Neochrome* formats.

RESOLVING PROBLEMS

To an extent the ST's screen-resolution is one of the biggest limiting factors: after all, you're never going to be able to see photograph-quality images on a 320 x 200 pixel screen. Bearing this in mind, the Realtiser Pro 8900 fares very well, producing high-quality grabs which compare favourably with other video digitisers on the market.

Nevertheless, if you expect to grab an image and leave it at that, you're going to be in for some disappointments. Because of the crude system of filters used in the grabbing process, the colours in your picture tend to be very bland. Heightening them means going back to your trusty paint package and playing with the colour palette. This makes the Pro 8900 an exciting and relatively cheap toy, but digitising still has a long way to go before you can throw away your trusty Olympus Trip. ■

ON THE VIDEO FRONT

If you want to grab images directly from the back of a video recorder, your ST or even from a Sega home console, you don't need to spend hours focusing a camera on the screen. Instead, you can buy an RGB splitter which takes away the need for cameras and filters and opens up enormous possibilities for taking some electrifying grabs.

An RGB splitter works with any colour digitiser on any computer, but until recently they've been thin on the ground. However, Third Coast is now selling a splitter as part of its digitiser line-up. Lash out £100 and you can buy the most boring-looking black box ever.

The only moving part of the splitter is a dial which can be rotated between Red, Green, Blue and Monochrome modes. The image from your video recorder goes in one end, with the output going off to the digitiser. The splitter replaces the filters by dividing a composite signal into its separate red, green or blue images, depending on the position of the dial. A higher-quality picture is possible since the process doesn't depend on cheap filters.

Although splitting an image into its composite colours is far easier than playing around with filters and a camera, it does have its own inherent problems. If you rely on the less-than-perfect freeze-frame of a video recorder you can have some sleepless nights in store.

THE BEGINNER'S GUIDE TO

Buying a portable is one thing, buying a useful portable is quite another. Express guides you through the factors to take into account...

Anyone who regularly uses a personal computer will at some point exclaim "If only it were here". Whether it's that brainwave that's just come to you on the 6.14 home, that quote for a deal you don't have the figures for, or just one more chance to take out those MiG 21s while you're waiting in a traffic jam, a computer at your fingertips can seem essential. But choosing the right one to meet your needs may depend more on your wallet than your desires. So where do you start? Begin by asking yourself these general questions :

Q. What kind of portable should I consider? Aren't there thousands of them out there ?

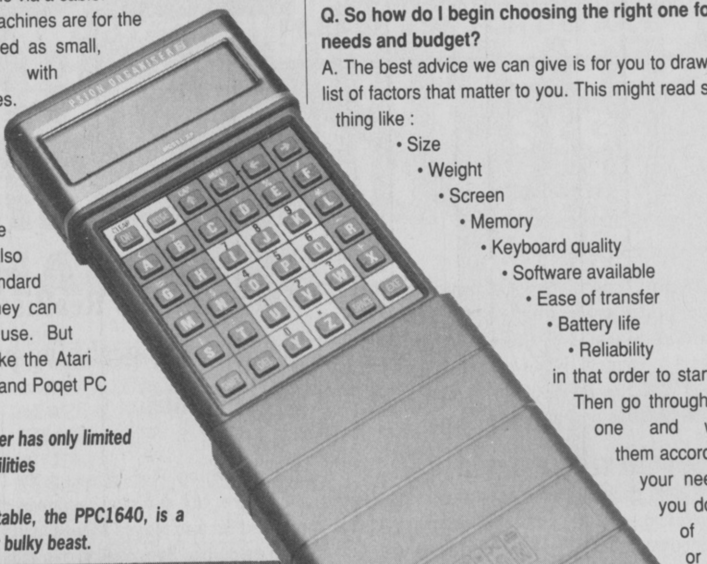
A. Just about, yes. Never a week goes by these days without some newer, smaller, more powerful and impressive portable being launched. At the current performance top-end are the fast 386 PC-compatibles, while LCD technology is now delivering colour screens. If compactness is what you're interested in there's a whole range of notebook-sized machines.

Q. So what's the difference between portables, hand-helds and notebooks ?

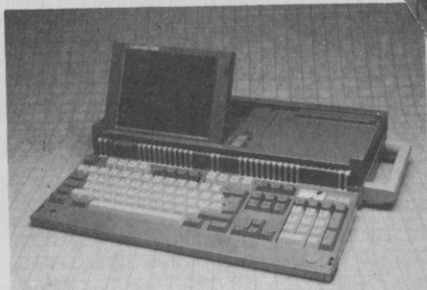
A. Portables follow the design of a briefcase with the screen forming the inside lid. They offer most of the power and functionality of a desktop machine, albeit with a mono display. Apart from Atari's Stacy and a few aging CP/M machines, they're all PC-compatible and use 3.5-inch disks. Amstrad, Compaq, NEC, Panasonic, Psion, Sharp, Sanyo, Tandy, Toshiba and Walters are just a few of the companies manufacturing them. You can spend between £800 and £5,000 on a machine depending on the speed of the chip at its heart – 8086, 286 or 386 – the number of disk drives, and the presence of a hard disk.

Hand-helds are flat thin slabs with a smaller built-in screen which offer fewer features at a lower price and don't come with disk drives. The two main contenders are Cambridge's Z88 and Tandy's 102 – both handy for note taking and featuring integrated built-in software. The screens are smaller and the keyboards not as responsive, but they're lighter, faster to use and the batteries last longer. Data can be transferred to your main machine via a cable.

Notebook machines are for the most part intended as small, super-calculators with database abilities. Two popular models, the Organiser from Psion (£99) and the Agenda (£195) also feature non-standard keyboards so they can be a pain to use. But newer models like the Atari Portfolio (£249) and Poqet PC (£1,200) offer proper keyboards, readable displays and some degree of PC compatibility.



• Psion's Organiser has only limited text-handling facilities



• Amstrad's portable, the PPC1640, is a well-specifed but bulky beast.

Q. So how do I begin choosing the right one for my needs and budget?

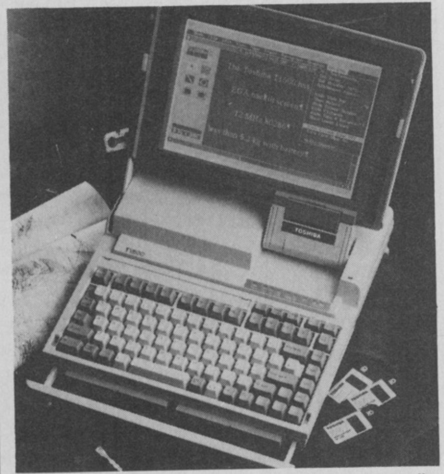
A. The best advice we can give is for you to draw up a list of factors that matter to you. This might read something like :

- Size
- Weight
- Screen
- Memory
- Keyboard quality
- Software available
- Ease of transfer
- Battery life
- Reliability

in that order to start with. Then go through each one and weight them according to your needs. If you do a lot of typing or taking notes in your line of work then you'll probably want something with which you can word process with ease with an excellent screen display. But you might want to trade off ease of use against the unit's weight – you don't want to have to start taking body-building lessons do you?

Q. What if I need to refer to information I have on my machine at the office?

A. Then you're likely to need a lightweight notebook



• Toshiba has a reputation for producing high-quality portables, like this powerful T1600.

FEATURES AT A GLANCE

TYPE	PORTABLE	HAND-HELD	NOTEBOOK
COST	£800 - £4,700	£280 OR MORE	£99-£1,200
TYPE	DISK-BASED PC COMPATIBLE	A4-SIZED LAPTOP	POCKET COMPUTER
SCREEN	'CLAM-SHELL' 80 CHARACTERS ACROSS 25 LINES	BUILT-IN 80 CHARACTERS ACROSS 8 LINES	BUILT-IN 40 CHARACTERS ACROSS 4/8 LINES
MEMORY	640K MINIMUM	20K-256K	64K-256K
KEYBOARD	FULL-TRAVEL IBM	RUBBER MEMBRANE	MOSTLY NON-QWERTY
SOFTWARE	FULL RANGE OF PC 3.5-INCH SOFTWARE	SUITE OF INTEGRATED, NON-STANDARD SOFTWARE	LIMITED MEMO-TYPE FUNCTIONS
TRANSFER	JUST SWAP DISKS	SPECIAL SERIAL LEAD & SOFTWARE	SPECIAL SERIAL LEAD & SOFTWARE
BATTERY LIFE	3-5 HOURS	20 HOURS OR MORE	4 MONTHS OR MORE

D COMPUTING ON THE MOVE

machine that will give you facts fast and will allow you to transfer your data both ways to keep it up-to-date. But then again you might deal with massive amounts of information – spreadsheets packed with formulae and databases bulging with detail. Then you'll need a fast chip, a lot more memory and maybe even a hard disk – the sort of power that won't leave you or your client dropping off to sleep while you wait for the facts to appear.

Q. What about the software? Not all portables take disks do they?

A. No, here it's a straight choice between buying a portable that uses 3.5-inch disks and a hand-held or notebook which uses memory cards or RAM packs. Running your favourite software is no problem on the former, but with card- or pack-based machines you'll be restricted to using the built-in programs and will need a lead to transfer your data files to and from your desktop model.

Q. What kind of software comes built-in with the smaller portables?

A. All hand-helds and notebooks come with some form of word processor, database, spreadsheet and appointment diary built-in, though the amount of resident RAM will lead to big differences between the scope of the applications. Some of the more compact models will offer just a simple note-taking facility instead of a word processor, a calculator instead of a spreadsheet and a memo pad instead of a database. But then the prices of these machines range from under £100 to over £600, so to some extent you should expect to get only what you pay for.

Q. What machines would you suggest ?

A. Ah, decision time, decision time... was it value for money, performance or screen quality you had in mind? At the end of the day the decision is yours and you have to live with the result, so make sure you go to a High Street store and have a go on the machines you are considering. You can always actually buy one from a mail order company! But in the meantime, here are a few suggestions.

PSION
MC 200

• The Psion MC400 is the pick of the laptops.

• A non-standard 2-inch disk drive sets the Zenith MinisPort apart.

• Tandy's popular 1400LT, a good-value portable.

PORTABLES

Until recently the portables market was dominated by machines that had only just made it off the desktop – seemingly hundreds of luggables like the top-selling Toshibas. But new machines from Zenith, like the MinisPort at £1,400, and Compaq's LTE286 at £2,500 combine significant advances in miniaturisation with none of the loss of features previously associated with greater compactness.

The **MinisPort** really is a little beauty. While it's not too fast, it's certainly small at 30cm x 25cm x 3cm and weighing only 2kg, and it comes with 1Mb of RAM. You can also fit an external drive, which is a good idea since it uses non-standard 2-inch floppy disks. At these prices you're paying for innovation, while yesterday's bulkier models are coming down in price. A particularly good buy is the **Tandy 1400LT** at £920 which offers dual 720K floppy drives and 768K of memory. It also shifts along at nearly twice the speed of a standard IBM XT. Otherwise, one of Psion's innovative new MC range is well worth a look – at £970, the **MC400** is the most useable with with built-in microphone and speaker for voice-dictation storage, 256K of memory and a good range of on-board integrated software.

HAND-HELDS

With only the **Tandy 102** at £343 to compete against, the **Z88** at £287 should have cleaned up by now. But in terms of useability – good keyboard, readable display and simple file transfer to external machines – the Tandy is probably the best buy despite the higher price. Both machines are slim enough to fit easily into a briefcase and come with useful integrated software. But the Z88, despite the lower price, simply doesn't have enough memory to write anything more than a couple of pages of text, unless you fork out for extra RAM packs.

NOTEBOOKS

There's only one real contender here and that's the **Atari Portfolio** at £250. At this price and with these features it's the ideal pocket-sized computer. Similarly-sized machines like the Organiser and Agenda don't come anywhere near to it in terms of useability. The Portfolio comes with an industry-standard-compatible spreadsheet on ROM for instant loading, built-in calendar, word processor, phone book and tone dialler with a useful 128K of RAM to work with. File transfer to desk-bound machines is easy, and the screen display and keyboard are of a good quality. If you can both find and afford one, the **Poqet PC** is a better machine though. It offers full PC compatibility, an 80 x 25 character display, and 640K of RAM. Besides using program cards supplied by leading business software companies, you can link it up to your desktop machine to read and write to its disk-drives. At £1,200 it may be relatively expensive but it's the current state of the art in compactness. ■

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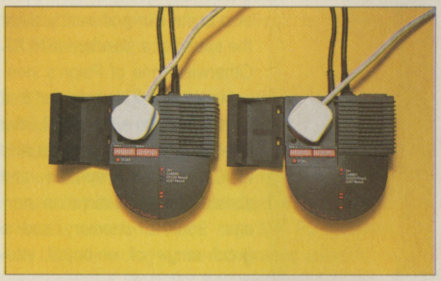

• *The Datalink looks smart, but is not easy to get working.*

The word 'network' strikes fear into the hearts of most computer users. The AC Datalink promises networking without the hassles – and without the cables. Tim Smith investigates...

The problem is to get one computer communicating with as many peripheral devices and other computers at the greatest speed for the least money. The Verran AC Datalink is touted as a solution.

Put simply, this device sends 'packets' of information through your existing mains electricity cables. This gets around one of the bugbears of local area networks (LANs) – laying a miles of new wiring. For the medium to large firm – say 30 machines and up – the ability to swap information between accounts and sales at the flick of a switch is invaluable. The smaller company suffers however, because a safe, secure LAN with no wires to trip people up means some expensive structural work on the building.

Verran approached the problem with the obvious solution that any building, office or shack already has built-in sockets and hidden wiring. Excellent in theory.

IN PRACTICE

In the real world, however, we had major problems getting the devices to work. To make two Verran AC Datalinks communicate with a PCW8512 and Amstrad SM2400 modem was unworkable. Attempting to link the 8512 to a PC-compatible and send a single line of ASCII text was possible, but sending a file of such text was not, and, most irritatingly, both machines had to be side-by-side to achieve anything. Keeping the same dip switch settings and moving one machine and Datalink to the next-door office meant only garbage was transmitted. Verran tells us that our machines must be faulty, but has not as yet managed to supply us with working versions.

VERDICT

On the plus side, these units look good and cut down on cables. The idea is elegantly simple and you can use software with which you are familiar – always a comforting thought.

For the small business, five to six people working on the same floor, no further than 50 metres apart, the Verran AC Datalink link could be a handy device. Could be, providing that the manual is vastly expanded to include some basic settings for standard printers, modems, plotters and computers!

The average business person, school or club just does not have the time to fiddle through four million or so permutations, with a pencil, 20 dip switches and some coloured buttons. ■

VERRAN VERSUS LAN

The nearest competition to the Verran AC Datalink comes in the form of local area networks. Two low-budget systems come from Sage and Amstrad. Comparative prices are as follows:

Three-Node Amstrad Network Starter Pack • £485

This serves three IBM-compatible machines (hence the 'three node'). The maximum number of machines it is possible to run with this system is 64. Once at this level each 'node' will cost you £153.

Operating software is provided which allows for fairly high levels of security and speed of transfer.

The main drawback here is for users of non-IBM-compatible machines. Unlike the Verran which will allow machines as different as the Amiga and PCW to send ASCII files to each other, the Amstrad LAN is strictly Big Blue.

Sage MainLAN Two Machine Starter • £399

With the Sage option each new node will cost you £199 – still over the cost of the Verran. Software is provided but you will still need to lay the cables and teach yourself (and staff) how to get the most from it. Security is not as good as the Amstrad, and the drawback for non-IBM users is the same.

Generally then, the Verran wins on price and by dint of the fact that you can use software with which you are already familiar. The down side is that the recommended maximum number of Verrans which should be in use at any one time is five pairs, whereas even these two – bottom range – LANs are far more expandable systems.

THE NITTY-GRITTY OF MAINS NETWORKING

At first glance, the Verran AC Datalink is a cleanly-designed, matt black piece of equipment. A great deal of time must have been invested purely in terms of aesthetic appeal. Leading from its rear are two leads; one is a simple electricity mains cable working at 240 volts and 50-60Hz, and fused at 3 amps. The other lead is the interface to your computer or peripheral device. Based on a straightforward (if there can be such a thing) RS232 serial/Centronics parallel system, the advertising gives quite an impressive set of specifications for baud rates, split speeds and emulations. The RS232 will accept bauds from 45.5 to 38,400 while the parallel flows along at 16,000 baud. Verran claims that using a 22-bit checksum the system will detect up to 96.99996 per cent of all errors, but what's 0.00004 between friends, so let's call it 97 per cent. At the business end of this cable is a male RS232 connector replete with five colour-coded mini-switches. These can be set to three basic formations – as a DCE (Data Communications Equipment) straight-through, a DTE (Data Terminal Equipment) null modem, and DTE crossover.

In theory, the Verran AC Datalink should be able to handle nearly anything at nearly any speed in both serial and parallel with near-perfect error correction. It's just getting two of them to work in concord takes some doing.

Also on the rear of the Datalink are three switches. The simple rocker switch is the On/Off controller. Two smaller switches control gain – basically a signal booster – and the path switch. This, according to the blurb, will 'maintain transmission even across different ring mains and phases'.

In order to actually get two units working, however, you have to turn to the top of the Datalink. Here you will find a plug socket which you plug your computer and peripheral into. The heart of the machine resides in two rows of 10 white dip switches which lie just above the plug under a semi-circular plastic flap. You have to get the settings on these exactly right and with up to four million permutations, as well as the colour-coded switches on the cable, things begin to get irritating to say the least. There is a feeling here that you are going back to the early days of hard-wiring programs.

The flimsy documentation which accompanies each unit tells us that "It is both wise and courteous to follow the simple instructions...". The dip switches may be set in four different 'Option Sets'. Each set being signified by the positions of switches 1 and 2 in row A, for example; Option Set 1 sees switch 1 off and switch 2 on while Option Set 3 has 1 on and 2 off. This is where the simplicity ends and the irritation cuts in. Row B must be set to the individual machine settings.

The fact that there are four million combinations becomes absurd when you realise that you cannot use more than five pairs of Datalinks at a time. Even more amusing, if you have not forked out £350 (£175 each), is the fact that the ideal maximum distance which two Datalinks should have between them is 50 metres.

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   Telesoftware
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Through the Gateway for Telesoftware
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PC
Amiga
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```
MICRONET (c)                  800999b      0p
          Monday 27th February
11 OS/2 for Amstrad PCs           (23/02)
12 Confident Acorn at Which?      (23/02)
13 Miracom at Which               (24/02)
14 Fastest PCs Launched?          (24/02)
15 Beatles Sue Apple              (24/02)
16 News Roundup                   (24/02)
21 BT Sell TelecomSoft            (24/02)
22 Technology Roundup             (25/02)
23 Walters' new goodies           (27/02)
24 HM Systems tiny secret         (27/02)
25 Room with a View               (27/02)
26 Letters mega update            (27/02)
31 Hacking on the box             (27/02)
32 Win an ST and join the party   (27/02)
news
 DESK
- Editor: Ian Burley
6 Soft-Tech          6 Dialtalk Birthday!
8 Micromouse                9 Front page
```

INFORMATION

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Add to this Prestel's massive database and you'll have all the facts at your fingertips.

```
MICRONET (c)                800999n      0p
        Book of Knowledge
1 Shades Overview   2 1st Time Users
3 Scenario          4 Map
  51 Mobiles          52 Fighting
  53 Etiquette        54 Death
                      55 Levels
          Shades
```

ENTERTAINMENT

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```
MICRONET (c).                800999a      0p
Micronet
 1 Micro magazines
 2 Newsflashes
 3 Communications
 4 Xtra Entertainment
 5 Prestel
 6 Telesoftware
* * NEW-LOOK MICRONET: GOTO 9 * *
```

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You can look up a local telephone number once on-line.

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     Communications on Micronet
 Sending Messages...
 11 Mailbox - for sending messages
 12 Bazaar - 'contact ads'
 13 Micronet Feedback
 14 Telex
 Live Conversation...      21 Chatlines
                           22 Dialtalk
                           23 Shades
 Making Friends...
 31 TMMC - Club, Newspaper, Virgin User
 32 ClubSpot - Special Interest Groups
 33 TheCUG - Closed User Group
 34 RSGB - for Radio Hams (75th year)
INTERLINK GATEWAY TO 'GOLD' - KEY 4
Send a letter to the Editor - Key 5
```

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NCE 20

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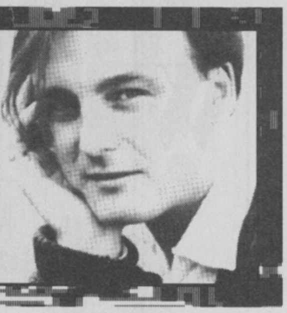
TECH TIPS



Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Uncle Tech Tip, he'll see you right. Send your sorry stories to Uncle TT, 30 Monmouth Street, Bath BA1 2AP. There's a prize for the most pitiful tale

HELP! Vagaries of VGA

I bought an ICL PC-compatible black-and-white monitor at a sale, catalogue number 641001, to use with my VGA PC. My problem is that the D connector is a fraction too small on the monitor lead and the lead is wired in to the monitor. Can you tell me if it is VGA and if there is an adapter that may help it to fit?

Peter Baillie, Surrey.

Peter, who told you this monitor was VGA? And what do you mean by "...D connector is a fraction small..."? A fraction small or a foot too big, either way, this D connector is not meant to plug into your PC and never will. It's not VGA either, so probably wouldn't be of much use to you.

If it is at all possible to retrieve your cash then do so at all speed. If not, then bung an ad into Shopping Express and off-load the ICL onto some unsuspecting reader...

TIP When I'm C64

I read with interest your reply to Brian Stevenson's letter (*Express* 63). I have recently upgraded to an Amiga, but am still a quiet fan of my humble little Commodore 64. It's fantastic and Commodore ought to be shot for not supporting it any more.

Anyway, you may be interested to know that there is at least one firm who still love the C64 and welcome all users with friendly chat, loads of free expert advice and all sorts of gizmos – including disk notchers! The company's name? Meadmore, and their number is 051-521 2202, although I'm not sure of the address.

Goonder Mali, Boodle, Merseyside.

Absolutely! A bit of good natured defence is what owning a humble micro is all about. Goonder, I'm awarding you Uncle Techtip's 'my machine's a dead fish but I still love it' prize of the week. A dull thud on the doormat will signal the arrival of the Amigarish trinket currently winging its way to you...

TIP Files on the Sega

I am the owner of a brand-new Sega Megadrive (Japanese model). As I am sure you know, this system is know as the Sega Genesis in the United States. I ordered two games and when they arrived they were marked Genesis system only. These games fitted into the cartridge slot but the machine would not switch on.

After examining the Japanese cartridges (these did work) against those that would not work, I found that the difference was that the Japanese machine has a cartridge lock to stop the cartridge being withdrawn when the machine is on – the American Genesis machine does not.

To remedy this problem, put both cartridges side by side and carefully mark where the missing slot should be, then slowly file a similar slot on the American/Genesis cartridge with the thin side of a woodworker's flat file.

'Take your time' is the watch phrase here, you don't want to go into the side of the printed circuit board inside the cartridge and ruin the game.

You will find that if you have added the slot in the right place and to the correct depth, the machine will switch on and work perfectly.

Chris Norris, Blackley, Manchester.

HELP! Infection detection

With all this talk of viruses and the recent stories in *New Computer Express* concerning the Datacrime virus and the AIDS Information virus, I'm beginning to get worried that my new Atari STFM computer will become infected with a virus and ruin all my disks. These floppies are expensive and I could not afford to have to replace them all if wiped out by a virus. Therefore, I have some questions which I hope you can answer and put my mind at rest.

1. Will a virus still be able to infect disks if I use the write-protect tab to stop them being written to at all?

2. Will viruses continue to spread throughout the computer industry and eventually infect all computers, or is virus writing a fad that will die out eventually?

3. If I find that there is a virus infecting my computer, should I switch the electricity supply to the machine off, or can I just press the reset button to eradicate the virus?

Mark Hudson, Radlett Moor, Lancs.

1. The virus cannot infect disks that have been write-protected. Unfortunately, although write disabling offers complete protection, there are times when you simply have to write to a disk. Therefore, the best method of defence is attack. Get yourself some good vaccination software such as *Virus Killer* (from CRL, 01-533 2918 priced around £13). Never bung disks from dubious sources, such as those containing pirate software, into your ST's drives, and take with disks received from PD libraries. Most good libraries ensure that their disks are virus free before being dispatched, but you can never be entirely sure.

2. As vaccine programs become widespread and their effectiveness increases, the virus writers will doubtless turn their hands to vandalising bus shelters, public telephone boxes and the like. There will always be new viruses appearing but if you're careful, they needn't be a worry.

3. Almost all viruses can dodge the reset. Turn off the power, wait for a few seconds then boot up the ST with a vaccination program. Check all disks used during that session.

HELP! STE problems?

I am a new computer user and have just purchased an Atari 1040STE. My reasons for purchasing this model were:

1. I needed an affordable word processor, hence a 1040 rather than a 520. I also purchased GST's *1st Word Plus* software package.

2. I also wanted to play games.

3. I wanted to be able to exchange software with my brother who has an Atari 520STFM.

All the research I was able to do before I purchased suggested to me that rather than buy the old 1040STFM model, I should invest in the newly-available 1040STE.

I assumed therefore that all software currently on the market would be compatible with the STE, including games. I therefore purchased two games, neither of which would load into the computer. After a few seconds of loading the disk drive light goes out, and that is it. *1st Word Plus* loads and works perfectly, so it is not a faulty drive. Incidentally, this month's *ST Format* cover disk will not load either.

It would seem that I have bought a computer that will not run any of the vast array of games titles currently on the market. Should I ask my dealer to swap my STE for an STFM? Will the games manufacturers swap current software purchased for upgraded compatible ones? Is my machine faulty?

Mark Foster, Ealing, London.

There is nothing wrong with your computer. There is nothing wrong with your disk drive and nor is there anything wrong with the software packages that you've bought. Unfortunately, the games – and a good few others – won't work with the STE due to the software houses responsible relying on foibles of the earlier ST hardware in order to provide protection against copying.

What happens is that STFM drives can read 82 tracks on a standard floppy disk, even though under normal circumstances the drives only read and write 80 tracks. Software houses have made use of these extra two tracks to locate protection system code. Your STE cannot access these two tracks, so the software behaves as if it was a pirate copy and refuses to load. You get to see the final results – the drive light stops after just a few moments but nothing happens after that.

Many, many games are suffering from these problems. If software houses had stuck to Atari's programming guidelines then none of the problems would have occurred.

OK, that's the reasons why, but how is the situation going to be resolved? Well, like all things 20th Century, it's a question of money. Games have a short life on the shelf. Newly-released examples which are proving popular will be converted. The big sellers of yesterday are history, and will not be converted. New titles will take into account the differences in the STE and will work perfectly. Do not exchange your STE for an STFM. Atari plan that the STE will completely replace the STFM, and for the same cost as the latter, you've got the former with all its extra bells and whistles. It will take a little while for software houses to catch up and this may be a frustrating period as you look on with envy as STFM owners run *Populous, Kick Off, Speedball,et al.* But take solace in the fact that you have the Atari machine of the future, now...

■HELP! Exotic font

I recently bought an Atari ST, mainly for word processing work, because my writing is really hard to read. My friend recommended the Atari to me because he had one and it would be easier for me to familiarise myself with it, and that has paid off.

Sometimes, however, I need a Cyrillic font, and I would be grateful if you could tell me if it is possible to incorporate this font into *1st Word Plus* program, or if you know of any programs that might have Cyrillic letters. I have tried for a long time to find something but have had no luck.
M. Huzan, Sherwood, Nottingham.

Rejoice, M. Huzan, for your long search is at an end! The *Signum Document Processor* from Signa Publishing is one of the very best word processors on the UK market today. It has many powerful features not least of which is its ability to use fonts other than those necessary for the English language – you guessed it, one of these 'others' is the Cyrillic font. You can contact Signa Publishing on 0252 341600.

■HELP! He's dead, Jim

I have just bought a copy of *Star Trek V* for my PC. On the box it said 640K minimum. My PC has 640K of on-board RAM. For some reason though, the game loads, shows a wonderful VGA picture of the *Enterprise* and then crashes. My brother says this is because DOS uses up some of the memory loading. Is this true and if so is there a way to take DOS out of the memory? I have tried the EXIT command. I would be very grateful for any suggestions as I have not yet played it!
Michael Pitt, Runcorn, Cheshire.

OK, games are popular, right? Popularity means that the games are written for every conceivable machine under the sun in order to extract the most profit from a limited market. No-one bothers with more than 640K RAM on a humble old PC (OK, OK some self-styled 'power' users do, but I'm referring to Joe/Jo public) so software houses realise 640K machines give over some of their RAM to the operating system. The problem doesn't lie with your PCs perfectly adequate memory.

You didn't tell me anything about your machine, brand, resident adapter cards, display, anything! Do you actually have a VGA display and card? If not, then running the VGA version of the game isn't going to achieve anything. Write again, telling me all about your set-up an maybe I'll be able to help (if you'd told me the software house responsible for *Star Trek V*, I could have provided their telephone number).

■HELP! Losing your voice

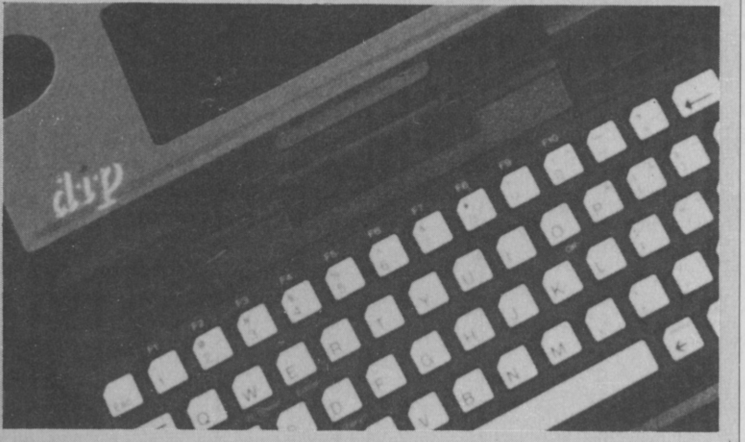
I am the proud owner of the Spectrum Plus 3 computer which I've had for about a year and which I use for several projects, but mainly for composing with my Yamaha PSS480 keyboard. This is fine except I cannot seem to use more than one voice on the Yamaha when controlled by the Spectrum. Can you please tell me how I go about assigning voices and channels so that I can use my keyboard and Spectrum's MIDI port to the full?
Rita Tolen, Ely, Cambs.

To make use of more than one voice you must select using the Spectrum's PLAY command. First however, the PSS480 must be set to mode 99. Once done, the PLAY command can be used to assign voices and channels. Codes are sent from the Spectrum in the form of two bytes, the first, a status byte which informs the Yamaha PSS480 that a voice is about to be selected and which channel it should be assigned to. The status byte ranges in value between 192 and 207, and includes the channel number (193=channel 2, 194=channel 3 etc).

The second byte denotes the voice to be used and covers the range 0 to 104 (these are printed on the front of the keyboard). So if you wanted to select the electric bass on channel 5 and the flute on channel 10, you would enter:

```
10 PLAY "Z196Z80Z201Z20"
```

■HELP! Printing out from a pocket Portfolio



• Atari's Portfolio – finding a suitable portable printer

I am a PC user and have to take my work home with me sometimes, so I decided to invest in an Atari Portfolio which I find is very good. I sometimes need a hard copy of some of my files and to do this, I have to run back to the office with the file first thing in the morning.

I have now decided to invest in a portable printer. Can you please give me some advice on portable printers? I would like a dot-matrix, battery- or mains-operated device which will take two sheets of A4 with a sheet of carbon in the middle, and it must be quiet. I have seen Kodak's portable printer from Misco. Also can you please tell me what is the difference between a dot-matrix printer and an inkjet printer, and which is better.
M. Sohail, Alexandria, Dumbartonshire.

Last things first. 'Dot matrix' means that the printer has an oblong matrix of steel pins usually arranged in a 9 x 7 formation. To create characters, the pins are fired through an inked ribbon against the paper in much the same way as typewriters strike paper through a ribbon. Using combinations of these pins, almost any character can be formed. The dot-matrix impact printer is also very fast but can be rather noisy.

Inkjet printers work by spraying tiny quantities of ink via a matrix of 'hoses' onto the paper to be printed on. There's no impact and consequently the inkjet printer is very quiet. It's not quite as fast as the dot-matrix variety, and you must be a little careful with recently printed documents in case you create smudges. However, the quality of type produced by the inkjet is far better than that of the dot-matrix.

After flourishing in the early Eighties, portable printers became almost unheard of, but are now making a comeback. Two of the better offerings are the Kodak Diconix 150 Plus mentioned in your letter and the Toshiba Expresswriter 301 which is slightly larger. Neither of these manufacturers are well-known for their printers, but both portables offer a healthy turn of speed, quality construction and reasonable price.

But which one should you choose? Well, let's compare their specifications. The Kodak machine provides print speeds of between 120 characters (draft) and 29 characters (NLQ) per second. The Expresswriter can only manage between 60 and 42 characters per second, but does provide better results via its 24-pin thermal transfer print head (the more pins, inkjets or whatever, the better the results will be). The Kodak accepts both single sheets and fan-fold paper (useful for long listings), and as it is a dot-matrix device it can produce carbon copies, whereas the Expresswriter can only deal with single sheets. The Expresswriter is larger and heavier than the Kodak Diconix but does provide better battery life (60 minutes compared to 50 minutes).

Both machines have a parallel interface and 2K print buffer as standard. The Expresswriter (£345) weighs in at £54 less than the Kodak device (£399).

Price is obviously going to be a consideration, but £50 either way when you're already spending almost £400 is not much to pay for the features you require. If you do need to carry the printer around a lot and want something small and neat then choose the Kodak machine. Its built-in Epson FX-80 emulation (as opposed to the Toshiba's Epson LQ850 emulation) will ensure that the device is completely compatible with all applications.

If however, the printer will spend a lot of time sitting on your desktop – and you're trying to pare costs to a minimum – plump for the Expresswriter. Slower, but with a better print quality.

Kodak can be contacted on 0442 61122 and Toshiba can be found on 0276 62222.

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This week our series on PC-compatible computers turns to keyboards and monitors. Which graphics standard is best for you? Mike Hardaker has the answers.

MONITORS & KEYBOARDS

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Year on Year
Italy
U K
U S
France
W Germany
6x
5x
4x
3x
2x
1x
0x
1987
1988
1989
DELL

Two essential elements of any personal computer system are the keyboard and the monitor. It's all very well having the fastest processor or the biggest hard disk in town, but if you can't get information in or out of your PC, then you are rather stuck.

A few systems – the Olivetti PC1, Sinclair PC200 and Schneider Euro PC – have the keyboard built into the system unit *à la* Amiga or ST, but they are rare enough to be ignored. On the whole, with the IBM-compatible PC the keyboard is an independent item, attached to the system unit by a length of wire.

84-KEY KEYBOARDS

The original IBM PC came with a keyboard endowed with 84 keys. These were based on the standard alphanumeric keys found on a typewriter's keyboard – QWERTY and so on, with the numbers lined up at the top. To the left of this typewriter-style keypad, the PC had 10 function keys or F-keys. These function keys have special roles depending on the application you are using – traditionally, for example, [F1] is the Help key. To the right of the alphameric keys was a calculator-style keypad. Its keys doubled as movement keys, shifting the cursor (the sign of where you are in a document or file) up, down, left and right. A few other special keys – locking the keypad in either in numeric or movement mode, for example – completed the set.

The 84-key keyboard was standard until the late 1980s, and is still available from some suppliers.

AT KEYBOARDS

The AT in 1984 introduced a different keyboard. Superficially similar to the original keyboard, it was larger and more opulent-looking, with lights to inform you if you were using the [Caps Lock] key, for example. Apart from on genuine IBM kit, the original AT keyboard was almost never seen. It is no longer available, although if you see one for sale second-hand it is perfectly useable.

ENHANCED KEYBOARDS

The final stage in the evolution of the PC keyboard came in the closing months of 1986 with the enhanced keyboard. This has 101, 102 or 103 keys (due to slight national variations) laid out in a more friendly way than on the original 84-key keyboard. Twelve F-keys are now provided, lined up above the typewriter's number keys. The movement keys and numeric keypad are also now separate. It is the reduction of duplicate functions such as this which has led to the greater number of keys. ➤

• The enhanced keyboard which is now the standard for PC-compatibles. The extra keys allow movement around the screen and use of the numeric keypad.

• Amstrad went its own sweet way with the idiosyncratic 1512 keyboard, once described as "like kneading dead flesh".

The enhanced keyboard also has 'home' keys (little ridges on the [F] and [J] keys which are of great benefit to touch typists) and an improved layout. Originally, there were two versions – the enhanced XT and the enhanced AT. The only practical difference was that the enhanced AT keyboard had its little lights.

These days, the enhanced keyboard is the standard. Increasingly, modern software assumes that this is the keyboard you will have, and forces you to use sequences of keystrokes which are uncomfortable on the original model. To create confusion, advertisements normally refer to the enhanced AT keyboard (the enhanced XT is now a thing of the past) simply as an AT keyboard. If someone tries to sell you a PC without an enhanced keyboard, ask them why.

ODDBALLS

There are some keyboards which do not follow the conventional pattern. Most infamous is that which comes on the Amstrad PC1512 and PC1640. This is almost the same as the 84-key keyboard, but not quite. Although it is possible to get used to the idiosyncrasies of its layout, some of your software may not be all that easy to use. Never mind – the machines cost so little it's worth putting up with. If you do have one of these machines, replacement enhanced keyboards are now available. The one provided by Evesham Micros is particularly good.

Laptop and portable computers also have unusual keyboards. This is because the 84-key and 102-key keyboards are too large for most portables (only Amstrad and IBM retaining them for their laptops) so individual versions have been developed. Some of these are stupidly cramped, but most are useable. Toshiba does a particularly good job of exploiting a small space.

FEEL

Layout is not the only consideration when choosing a keyboard. Another important factor is 'feel'. This refers to the positive reaction that your fingers get from the keys – or the lack of it. Some of the worst keyboards come from Amstrad (the PC1512 item was once memorably referred to as being like 'kneading dead flesh') and some of the best are from IBM (although NTS and Digital Matrix both use a keyboard which is even better than IBM's). The difference between a good keyboard and a bad one is simple: good keyboards use individual microswitches for each key which go click when you press them. Bad keyboards use a single rubber membrane which doesn't.

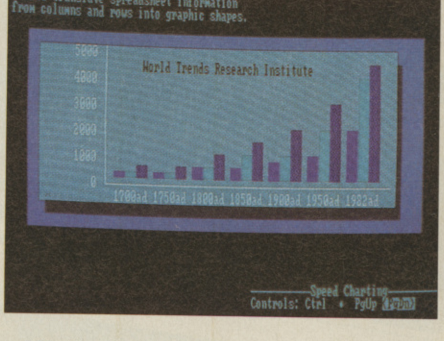
MONITORS

The thing that sits on top of the system unit and looks like a TV screen is called a monitor. It can also be called many other things, and it's worth knowing its synonyms so you can nod sagely when somebody else mentions them. After monitor, the most common is 'screen' – a bit slangy, but OK. You still hear people talk about VDUs (for visual display units). This is like calling a record deck a gramophone, or a digital tuner a wireless – not recommended if you want to get a good discount out of a computer salesman or to sound authoritative in the pub. You may also see or hear CRT (for cathode ray tube) or simply 'tube'. Equally rare, but still just about surviving, is 'console'.

A monitor is your window into what the PC is doing. At its most straightforward it can display text. It can also display highly-sophisticated graphics images at a higher resolution than your TV.

In the beginning, there were only two types of monitor. To be accurate, there were actually two types of adapter. If you want to attach a monitor to your PC (and you do) you must first plug in a card to act as an interface. This is known as a video adapter, and it is the most important element in deciding how good an image you will see on your monitor.

• Colour VGA screens offer the best (and most expensive) displays.



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• CGA offers low-resolution graphics with hideous text – avoid unless you really nead the colour.

The first two adapters were the Monochrome Display and Printer Adapter (MDPA – usually known as just the MDA) and the Colour Graphics Adapter (CGA).

MDA

For traditional word processing, an MDA is fine – providing 80 columns by 25 rows of high-resolution text on a traditional green screen. However, it does not show any graphical images – it can't draw lines. The MDA is almost never seen now, but if you see one second-hand and only want to work in 'text-mode' it is perfectly adequate.

CGA

The CGA can show graphics as well as text, and can do so in four rather nasty colours. The trade-off, unfortunately, is that the resolution is nowhere near as fine as on the MDA. Nine years on, the CGA is still the entry-level colour adapter, seen on machines such as the Amstrad PC1512 and a whole host of other cheap clones. Except for games (which really need the colour) you are better off with a Hercules adapter (see below) for most uses. Unusually, the Amstrad PC1512 mono model uses a mono implementation of CGA.

HERCULES

The first video adapter to combine sharp text with graphics was the Hercules, which came out in the early days of the PC. If you bought a Hercules adapter, you replaced you MDA with it and suddenly your green screen could draw pictures. Because the 'Herc' drew to a finer resolution than the CGA (allowing more dots on an equivalently-sized area of the monitor) it soon became the first choice for more precise computer graphics, such as computer-aided design (CAD). The Hercules (or, to be precise, cheap clones of it) is now the entry-level PC adapter. For business use its finer resolution (giving less stressful use) knocks spots off the CGA. Some programs require CGA, but public domain CGA emulators for the Hercules can be had for a fiver and work well.

EGA

As far as IBM was concerned, there was only one thing wrong with the Hercules adapter – it wasn't made by IBM. To this day, it is the only graphics standard which has become truly established yet hasn't come from within Big Blue's own labs. IBM fought back with 1984's Enhanced Graphics Adapter (EGA). This provided text that was nearly as sharp as on the MDA, together with crisp 16-colour graphics. It was very well received despite its high price, and only began to fade from view in the past year. The Amstrad PC1640 uses the EGA standard in most of its manifestations, although the CGA versions are available and the mono version (unlike the PC1512) uses Hercules graphics. These days, EGA is something of a dead duck, superseded by the more advanced VGA (see below). But it is still pretty good.

VGA

With the launch of the PS/2 in 1987, IBM introduced a new graphics standard – VGA (Video Graphics Array). This differs from the previous standards in that the adapter produces an analogue rather than a digital signal. In practical terms, this means that special monitors are needed. VGA allows up to 256 colours on screen at any one time (or 64 shades of grey in its mono version) and supports a number of very-high-resolution modes. VGA is the business standard now, and as more and more programs come out to exploit its facilities, it is getting more and more desirable. If you can afford a VGA machine, buy one.

OTHER STANDARDS

The Amstrad PC1512 actually possessed a superset of CGA which allowed 16 colours to be displayed at once. Some programs were announced which supported this mode, but few are now available. The 16-colour mode was clever, but never established a standard and should be treated as nothing more than a curiosity these days. Tandy has a similar mode on many of its machines which is supported by a number of American programs – mostly games. The Tandy Graphics Adapter is now an interesting footnote in the history of the PC and not much more.

The Professional Graphics Adapter (PGA) was an attempt by IBM to crack the lucrative scientific market. It offered fabulous resolution at a ridiculous price and sold in minute quantities.

Since VGA came out, a number of manufacturers have offered enhancements to the VGA standard. These include Super VGA, Enhanced VGA and IBM's own, charmingly-named 8514/A adapter. None of these has yet succeeded in forcing a standard although one of them undoubtedly will in time. The safest bet is the IBM version, despite its high price. Come back in 1995 for further details.

THE SCREEN

The MDA and Hercules adapters both use the same sort of monitors – basic mono models. These days they are available in three flavours: green, amber and 'paper white'. Green is the traditional data processing version although amber is often felt to be more restful. These days the 'paper white' screen is taking over, and is certainly a lot more pleasant for jobs such as desktop publishing – unless you habitually use amber paper, of course.

CGA cards use CGA monitors, it's as simple as that. EGA, on the other hand, can drive either special EGA monitors or monochrome monitors as used by MDA and Hercules.

The analogue signal used by VGA demands analogue monitors. These are available in colour or mono, and are more expensive than the CGA- and EGA-compatible models.

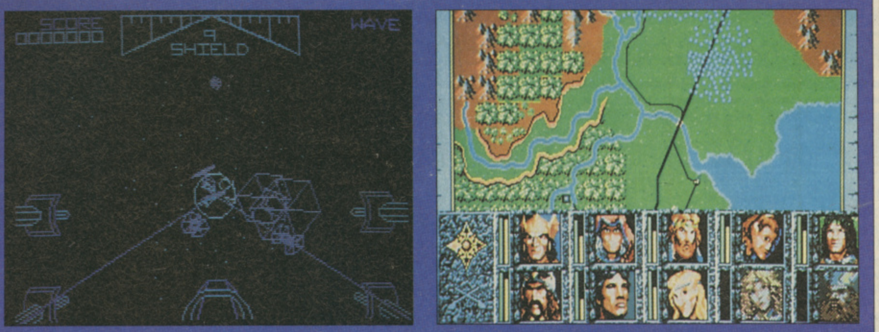
The most general-purpose monitors are called multi-sync monitors. These can be used for digital or analogue signals – for any type of display.

SIZE ISN'T EVERYTHING

Monitors come in a variety of sizes, and it may seem as though biggest is best. This isn't necessarily the case, however. The most important thing when using a monitor is to gain clarity, and this is very much a function of 'dot pitch'. Put simply, this is a way of describing the distance the screen's dots of light are from one another. Simple mathematics tells us that if 1,000 dots are put into an area six inches square, and then 1,000 dots are put into an area a foot square, the dots will be closer together in the smaller area. This can be seen on televisions, where a little portable will frequently have a clearer picture than the 28-inch behemoth sitting in the corner of the living-room.

Since a computer screen contains a fixed number of dots, it can therefore be seen that a small screen will typically be clearer than a big one. This is not always the case, but the technology necessary for a crisp 20-inch screen costs a huge amount of money. For normal use, a screen of between 12 and 14 inches is about right. In VGA situations – where it really counts – look for a dot-pitch of about 0.30 (0.27 is really good and 0.40 is awful).

Anti-glare screens can dramatically improve the clarity and easiness-on-the-eye of a monitor, and are worth investing in■



• For playing games a colour adapter is essential, but anyone used to 16-bit games on other machines will be sorely disappointed with CGA's performance (left). VGA on the other hand can give any other micro's graphics a run for their money. In broad terms, VGA is equivalent to Archimedes- or Amiga-quality graphics, EGA approximates to the Atari ST, while CGA comes off badly in a comparison with the Spectrum

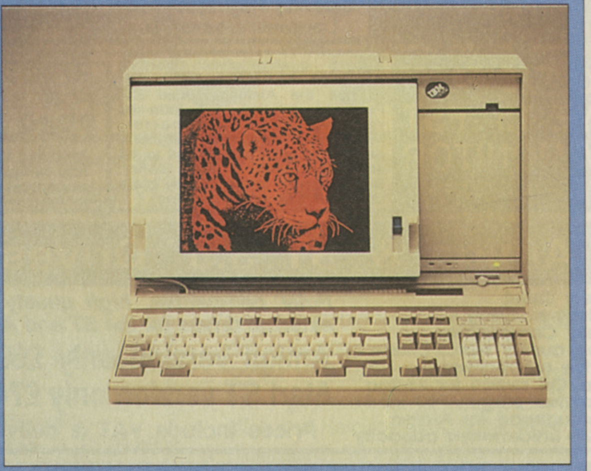
COMPATIBILITY

Most adapters are 'downwardly compatible' – they will run software designed for less sophisticated graphics adapters.

All adapters can run 'text mode' programs written for the MDA. The CGA can therefore run MDA and CGA programs and the Hercules can run MDA and Hercules programs. With a software emulator, the Herc can also run CGA programs. Since IBM did not invent the Hercules adapter, it doesn't bother to emulate it. So the EGA can only run CGA, MDA and EGA programs. The VGA, in turn, can run EGA, CGA, MDA and VGA software – technically, at least. In fact, most non-IBM VGA cards also emulate the Hercules. The enhanced VGA cards can do everything the VGA can do, as well as their own special modes.

A third-party VGA card (such as that produced by Paradise) offers the best of all worlds.

LAPTOPS AND PORTABLES



• Gas plasma VGA displays give excellent results.

Since a cathode ray tube is a bulky item, it is not suitable for a portable computer. Two methods have been used to provide a flat solution – LCDs (liquid crystal displays) and gas-plasma screens.

LCDs use very little power (ideal for battery-powered applications) but are hard to see. The first method for making them clearer is called supertwist technology. Leaving the technical mumbo-jumbo aside, if it isn't supertwist it isn't worth buying. The second useful thing is backlighting. This literally shines a light through the back of the LCD which means you can see the text on the screen in comparatively bright light. Backlighting eats battery power but turns the laptop PC from a toy into a useful tool.

Colour LCDs have been developed, but they are a few years away from being affordable. LCD these days means bright blue text on a pale-blue background and emulation of CGA or EGA. One or two VGA laptops exist and they really are rather nice, if inordinately expensive.

Gas-plasma technology is really only suitable for mains-powered portables, because of the power overhead. Gas-plasma screens glow with a rather ethereal orange light but are good and clear. Most still emulate CGA, although VGA is becoming more common.

Since laptops are necessarily monochrome, it is worth testing software on them to ensure that red on blue menus don't appear as bright orange on bright orange.

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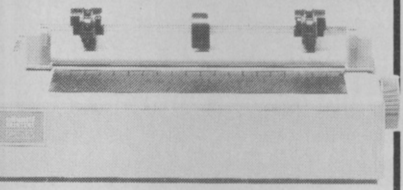

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This week's replies written by Martyn Lester.

Route of the problem

I was amazed to read the article in *Express* 62 entitled 'Piracy Ban Bites.' I, like all my ST-owner friends, have got the demo of the Nextbase *Autoroute* and feel that it is excellent and that a lot of work has gone into the program.

The £150 price tag was far too much for me to buy the program, but I did take the demo version into work, where we have a 1040 ST, to see if I could get them interested in the full-sized version. Unfortunately, they already had the PC version of it.

Even the special Christmas offer, with its £50 price tag, is far too expensive for the casual user to justify, when £50 can buy a bare DS disc drive and is nearly the price of a half-megabyte memory upgrade. Furthermore, unlike a word processor, you would not need to use it every day.

To claim that they haven't sold many copies for the ST at the £50 mark because of piracy is absurd. I am sure that most small companies in this country use PCs, rather than STs, and will have already purchased their copy of *Autoroute*.

It is a good program, but I am sure that, unless the price is reduced to a realistic level for the average ST user, their sales will remain sluggish!

Keith Rider, Kingston, Surrey

Signing on 1

For the last few years I have been involved with SUUG, the Spectrum Unemployed User Group. I have now upgraded to an ST and, finding no similar group for this computer, I have decided to form the STUUG.

The main aim of the group is to exchange news, views, ideas, and PD software – only PD piracy will not be tolerated. The exchange will be done with a regular, free, disk-based magazine.

Membership is a once-only fee of £1, and the magazine is available to any member that sends a disk and an SAE. The benefits, at the moment, are 10 per cent off orders from MT Software and PD at registered prices from 16/32 Software. I am negotiating other benefits.

If anyone is interested write for the first issue of STUN magazine – don't forget the disk and the SAE.

Dave Burns, 218 Belgrave Walk, Mitcham, CR4 3QE

Signing on 2

I was involved in a very successful group user group for the unemployed computer enthisiast in Dublin where we set up a public domain service for many formats. We also started a virus checking service, held meetings, had outings and received great support from computer shops which provided free games, blank disks, stationery and publicity.

I would love to repeat this in Britain, and my idea is to set up a club, with individual sections run by a small number of dedicated users for as many formats as possible. Further, the sections would, if possible, set up their own PD and information services.

A newsletter, including information from each section, would be produced bimonthly and would, I hope, also include a *Dungeon Master/Chaos Strikes Back* column, users' ads, a help column and a section for each of the computers.

To set up such a large user group we would have to make a small charge to members of around £3 to cover mailing, PD software, putting together and printing the news letter. To comply with Government and LA regulations a set of accounts would be produced at the end of each year.

I would be most grateful if you could please print my name and address so that interested people could contact me about the ideas above. And if you are interested, do not hesitate!

Paul Matthews, 2/6 West Pilton Crossway, Edinburgh, EH4 4ED

I reckon the first thing you two guys should do is to get in touch with each other without delay. Do let us know how you get on – and information on other similar groups will be equally welcome.

As a one-time regular UB40➤

Sega superiority and the shame of software houses

I own a Commodore Amiga, an Atari ST and I bought a Sega 16-bit Megadrive about four months ago.

I am, first and foremost, a games player, and I am disgusted by the poor quality of games on the ST and Amiga.

The standard of games software available for the Amiga has steadily fallen; it is still far higher than that for the ST, but this really isn't saying a lot. Most of the Amiga games seem to be ports from the ST, and those that aren't are just as bad.

Over the last year I've spent over £500 on games for those computers, and I thought that most of them were OK until I bought my Sega Megadrive, which proved to me that ST and Amiga games simply have no playability.

For example, *The Super Shinobi* on the Megadrive is a superb game and far superior to anything ever written on the ST or Amiga. The sound is stunning, the graphics are breathtaking and everything moves around the screen effortlessly – but all of this is severely overshadowed by the unbelievable playability of the game.

I expect that you'll be saying: 'But *The Super Shinobi* costs £35, nearly twice as much as an Amiga/ST game.' Yes, it does, but this game gives you three to four weeks of constant playing, whereas ST and Amiga games only last about half an hour.

The Super Shinobi is not just a one-off. *Super Masters Golf* is far better than any golf game on the ST or Amiga; *Ghouls 'n' Ghosts* wipes the floor with other computer versions. What is more, *Kyjako II*, *Rambo III* and *Folden Axe* are all excellent Megadrive games – to name but a few.

I used to be eager to buy ST and Amiga games, but not any more. If something really special isn't launched to restore my faith in these ageing machines, they will both have to go.

Come on all you software houses, let's have more playability. And if you don't know what I mean by playability, which is inescusable in and of itself, you can always go out and buy a Sega 16-bit Megadrive and discover for yourselves.

Mark Richards, Doncaster, Yorkshire

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Sega also announce that 'grey' imported Mega Drives will be incompatible with the software which will be marketed in Europe when the official Mega Drive is launched later this year, and that owners of the 'grey' imports will not therefore be able to run this software.

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carrier, I wish you all the best of luck in any scheme that makes life on a low income a little less of a grind – especially at those times when it feels as if the system has it in for you.

And may I also take this opportunity to say a very belated 'Yah, boo, sucks!' to the Civil Service mafiosi who insisted that I would never ever become a journalist...

Airspace cadet

May I comment on two Activision games I recently received.

***F14 Tomcat* may as well be called 'Polecat' because I'm still in pole position and unable to start a career. While the flight mode is quite good, the enlistment scheme is ludicrous and unrealistic. You are supposed to follow another aircraft through 8 manoeuvres – Captain AST16 flies the aircraft sideways and briefly vertically. It is an exercise in response, and I have followed within half a screen-inch and landed well but cannot make more than 32 points out of 100.**

Furthermore, the records of the failure make no reference to the area that needs brushing up on. No career – no interest. I've tried for over 50 flights.

***Fighter Bomber* boasts 30 graphics etc but, once again, it is a ludicrous innovation. There must be 3,600 degrees in Activision's circle; a change of two degrees at five miles from target would normally take half a mountain, but with this simulation you could get 15.**

It is impossible to do circuit and bumps, take-off or landing in any of their eight fighter bombers, and there is no realism in flying around an airfield that is so vast that there's no chance of returning to point of departure.

Why doesn't Activision take a leaf out of the book of Mircoprose – *F19 Stealth*. Aircraft control, navigation and handling during landing, with pitch and roll indication, displays excellent realism. I have asked for my refund – they are both worthless.

I wonder what *F29 Retaliator* will be like – I will try before I buy next time.

J B Taylor, Tunbridge Wells, Kent

STE boot-boys

As an over-subscribed member of the 'Atari STE Boot Up Club' can I congratulate *Express* on your scoop and thank you on behalf of our tormented members for consoling us in our hour of need?

I have the original version of *Arkanoid*, which performs satisfactorily, together with the re-released version by Ocean, which will not boot. It is painfully obvious that, independent of existing TOS 1.6 problems, the source of wholesale booting troubles is the sophisticated software-protection subroutines employed by successful software houses.

I believe you should continue your present dialogue with our scattered, ever-increasing membership – but a slght change in direction would ensure the maximum of global satisfaction.

Instead of listing titles which give problems, wouldn't it be more positive to list software house titles which do not give problems? That way our members can build up the software collections we crave from the most-deserving software houses. Only then will we be able to ensure that Atari will correct this operating system.

The software houses should also be encouraged to get down off the fence and accept their share of responsibility.

NB – US Gold's *Strider* will perform satisfactorily on the Atari 520 STE; I have managed only one success from eight purchases to date.

Jack Robinson, Birtley, Tyne & Wear

That's the problem with us cynical press hacks, we show no appreciable interest in running 'dog doesn't bite man' stories.

Have you noticed those rotten people on Radio 4's *Today* programme do the same thing by failing to give out lists of roads unaffected by contraflows and not blocked by traffic jams?

Seriously, though, we really do not have the resources to do what you are asking. I can't find anyone who will make even a ball-park guess at the number of commercial ST games on the market, but I can lay my hands on one listing covering 500 or so for starters.

Admittedly, those that will not boot at all would show up quite quickly, but the others would need playing through to check that they don't crash. How long should each game be played for before we feel confident that we can assure readers that the game is clean. An hour, perhaps?

And whatever popular opinion may be, I can assure you that *Express* has nowhere near 500 games piled up around its office in any case.

If I were to go and lash out with the company cheque book for every ST game I could lay my hands on, then pay someone to play them for five or six weeks, I think my managing director would very quickly invite me to become a member of one of the unemployed user groups (see elsewhere in this weeks' *Express* Mail).

Nice idea, but...

Taking yet more flak over Archie

I am a devoted reader with an Archimedes computer and I would like to draw your attention to the very small Arc section. Amiga, Atari and PC compatibles have at least a full colour page each but the Arc section is fitted into one corner of a black and white page.

I am thankful for this minute coverage, but don't you think that this superb machine deserves at least the same coverage as the others?

The Arc has been around for a while now and the software, being released covers the entire spectrum, if not in quantity certainly in quality. In comparison to packages like *Impressions, Multi-Store, Pro-Artisan* and *Interdictor*, the Arc stands way out from the crowd.

Few magazines have run columns for the Arc for more than a few months, and I feel that the machine needs more coverage .

This is particularly relevant with the advent of the latest ARM processor version 3 and the new range of machines that Acorn will be producing in the near future. I hope you will be one of the first to help!

S R Mansfield, Margate, Kent

It's not that we don't love the Archimedes, it is just that the space we give over in columns roughly refelects the proportion of our readers using the machine – that's why our NCube column is so small as to be undetectable to the naked eye.

To be fair, the Arc gets a lot more news and features space than some of the other machines we cover.

Plus, if our next readership survey comes out to show that there are more of you out there than has previously been the case, we will certainly give the column size a serious rethink.

A3000
A3000
A3000
HARNESSING THE POWER

• Archie: a glorious machine starting to break clean away with the readership?

Grumble

Recently the disk drive in my second-hand 520 STFM decided to give up and, tempted by the extra features offered by the STE, I decided to upgrade.

I rushed home and tried my original version of *Speedball* which, as you said in *Express*, failed to load, as did *Xenon*, from Ocean's Precious Metal Collection.

Out of curiosity, I tried hacked versions of these games (they came with my STFM) and both games ran perfectly. This suggests to me that it is the copy protection that is at fault, not the program itself – so Atari was quite right in putting the blame on the software houses.

What makes the situation worse is that Mirrorsoft is not 'rewriting' *Speedball* even though it is only the copy protection that stops the game from running.

I would be very interested to hear software houses reply to these claims.

Anon

Quality bleat

I write with two questions and two comments on the current computer scene. Firstly, why has nobody reviewed/commented upon *Fast Lane*, a game which Artronic has released for the Amiga & ST?

Although it has been available for about two months at least, I have only seen a small news item about its release; I don't recall seeing a single review of it in any of the magazines. I bought a copy for my Amiga and, despite the fact that I won the championship on my second attempt and never bothered with all the initial set-up, it really is quite good. Anybody got any comments?

My second question concerns *Crazy Cars*, a program from Titus which I ➤

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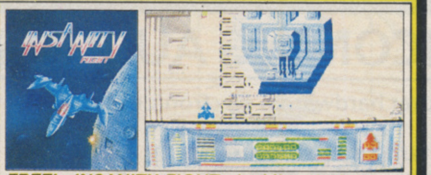
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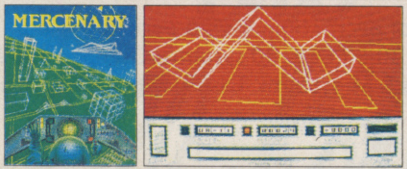
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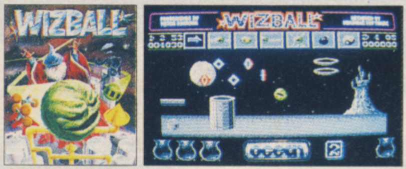
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have the good fortune to win recently. What the hell are you supposed to do? I have read the very brief instructions many times but I still can't work out what's supposed to be happening. I would be grateful for any clues you or your readers could provide.

My next point concerns the subject of games, particularly coin-op, conversions. I'm sure I'm not alone in being sick and tired, of the poor quality of these conversions compared to the standard of the original titles.

Companies, such as Ocean, who've got the money to secure a big name licence seem to care little about the quality; they know it will sell on name alone. Compare, for instance, Ocean's conversion of *Chase HQ* on the Amiga, a big-name, licensed coin-up, with *F-29 Retaliator*, an original title that has been praised highly for its quality.

Furthermore, many companies place a screenshot of the version which looks closest to the coin-up on packaging and advertisements for all formats. One can pick up cassette boxes containing products for the Amstrad CPC and Spectrum and still find full-colour, high-quality screen shots of Amiga versions! This must be wrong, if not illegal (Trade Descriptions Act?). Surely this is a case of pure misrepresentation.

On the other hand, again in the case of Ocean's *Chase HQ* on the Amiga, I have seen an article, a video trailer, the original Ocean advertising and a 'screenshot' all looking completely different. Indeed, it has been commented that the video trailer was the original coin-up purporting to be one of the 16-bit versions!

The only way to discover what it is really like is to buy the product, by which time Ocean have got your money and it is too late. I am willing to pay the high price (£25) for software if the quality is good – but in many cases the price is simply not anywhere near justifiable.

Another point I would appreciate your comments on is the idea of getting companies to tender for game conversions. By this I mean that the contract to produce a coin-up conversion would be awarded not to the highest bidder, but to the company that produced the best, highest-quality demo or mock-up of the finished game.

In this hard commercial world, surely quality counts for something? Unfortunately, high quality is chiefly in the interest of the computer gamers and, judging by the way some producers act, it is only the punter's cash, as much of it as possible, that they care for.

Finally, anybody out there want to give me a job? I have an HND in Computer Studies but no programming experience as such and I am finding it very difficult to secure a position even as a trainee programmer. Anybody?

Mr M R Sutton, Waunarlwydd, Swansea

I'll bet that Ocean aren't the first to leap forward and make you an offer!

■ Plugging away

I would like to put Steven Wilds (*Express* 63) right on MSX software.

For months now I've been using a company called Tavistock Hi Fi Ltd, 21 The Broadway, Bedford, MK40 2TL (Tel: 0234 56323), which has prompt, delivery-free software lists, new releases every month and extensive choice.

So who is Steve trying to kid? If he is, in fact, having difficulty in tracing the 'non-existent' MSX, perhaps he'd better try harder for the XE. Believe me, it's worth the hassle as both are truly excellent machines.

Ian Steels, Westwood, Peterborough

■ Attitude problem

I don't usually reply to letters featured in magazines, but feel that I must take Wendy Pitt of Cambridge to task (*Express* 63). How, in all seriousness, can she refer to *ACE Flight Simulator* as being: 'Really very good'? It's abysmal!

The response to both keyboard and joystick is non-existent and graphics appear to have been drawn by my daughter, who is eight years old – sorry Liz. Does Wendy work for Cascasde, or A-Z Computer Services? Stick to Tomahawk, wontcha folks.

If you want a recommendation for anything for the PCW, go out right now and buy *Micro-Design 2* – it's the best thing since glasnost. You can get it direct from Creative Technology in Uttoxeter – For more details telephone 0889 567160 – for £59.95 including p&p and a free extra fonts disc.

PS: if you are wondering if its a case of the wolf and the sheep dog, no, I don't work for Creative Technology.

Phil Cole, Rotherham, South Yorks

■ Medium's message

I think that all the controversy generated by readers' letters and other articles on the STE could be quite misleading to anyone thinking of buying this machine. Yes, there are problems, but most are not half as serious as people are making out.

It isn't true to say that you can't save Desktop preferences to disk. You can't save the screen resolution, but that doesn't mean you can't boot up a disk in medium res.

All you need to do is manually edit the '`DESKTOP.INF`' file where all the settings are stored. Load it into your WP and look for a line reading E 98 12 (the numbers may be different). Change the second number to a 13, then save the file back, in non-document mode, to your disk. You can now boot up in medium resolution. Easy!

It should be quite simple to automate the process, which is presumably what the Atari Helpline have done.

There may be lots of software that doesn't work with the STE, but that's hardly surprising for a machine with a new operating system and several hardware additions inside. It happened before when the 800XL was launched to replace the 400/800 series.

Since all new software will be STE-compatible and many old titles are being converted, I hardly think that anyone will be facing 'STE misery'.

I strongly suspect that those people complaining of strange happenings with the keyboard when using *First Word* have no real problem whatsoever.

They are probably switching on with a joystick plugged in, which will indeed confuse the keyboard controller and cause key presses to come out as completely different characters.

When using programs that require keyboard input, you must only connect the joystick after booting up. Use a joystick extender for convenience.

The new control panel will be available free by sending a copy of the system disk to the Atari Helpline. Phone first on 01-309 7770.

Paul Rixon, Shefford, Beds

Thanks for the tips.

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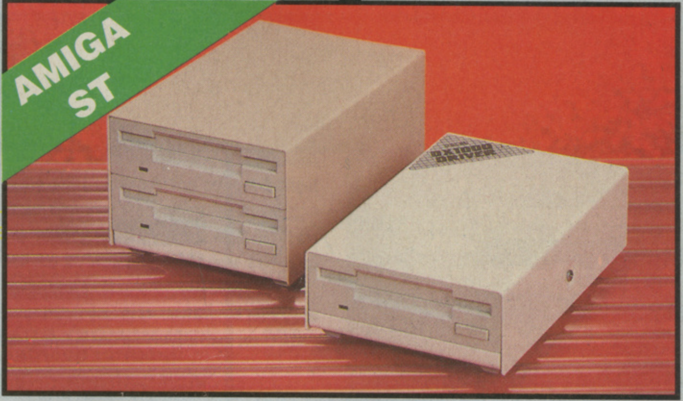

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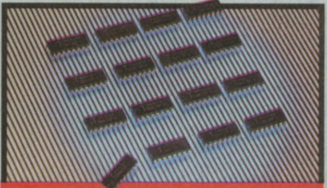

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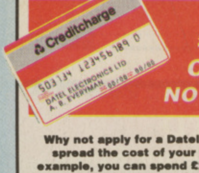

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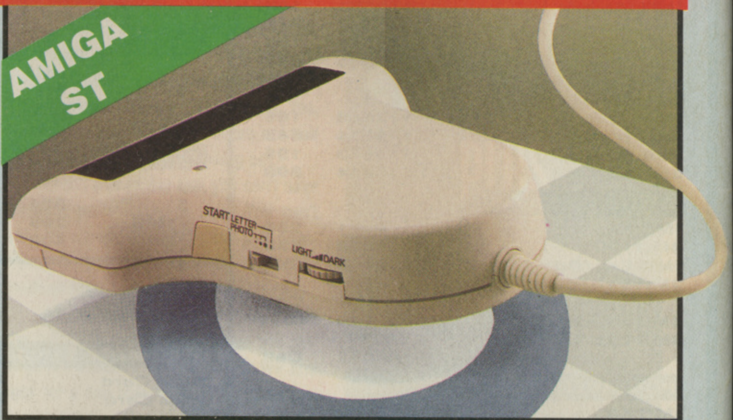

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